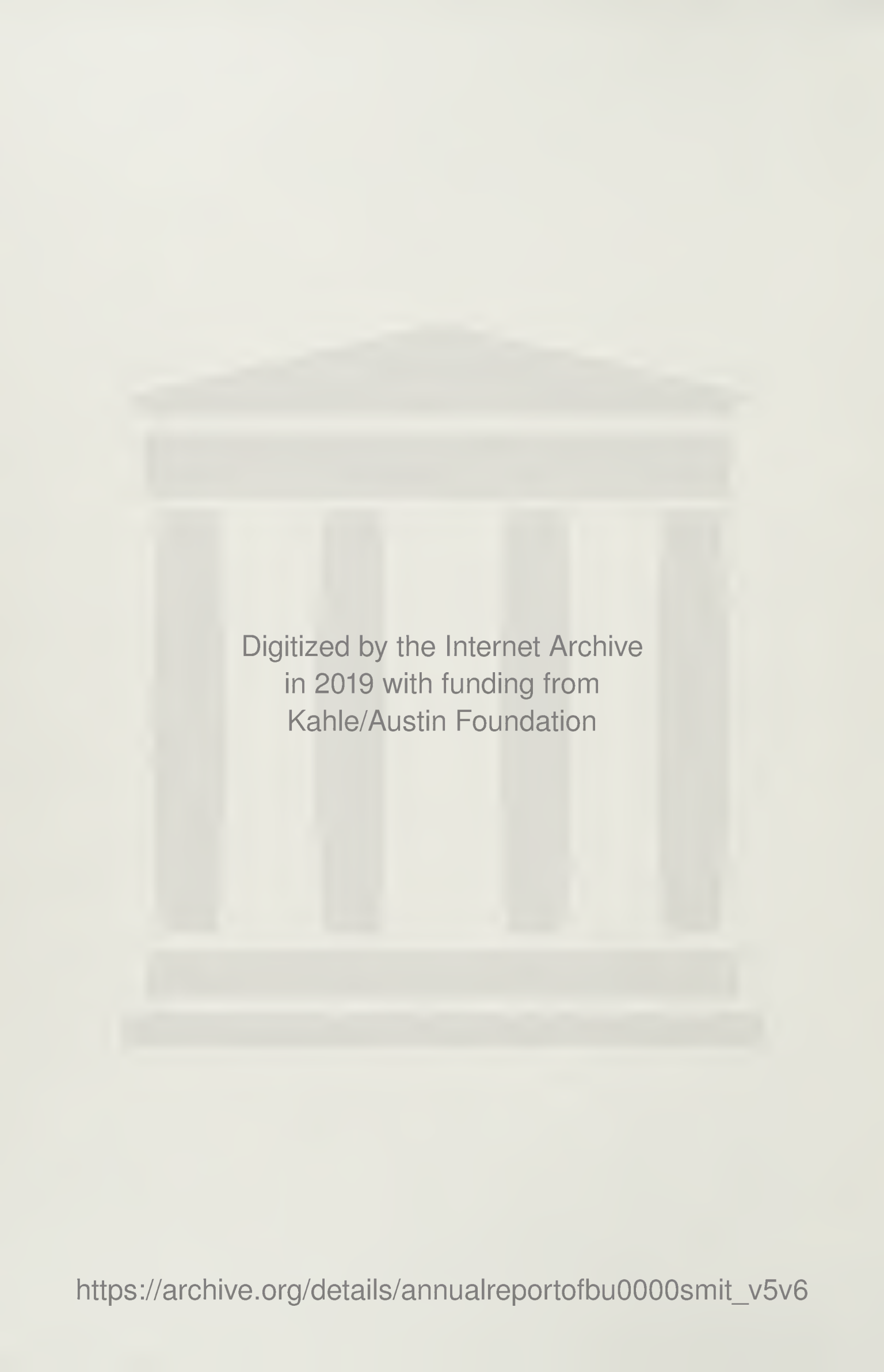
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SECOND ANNUAL REPORT

OF THE

BUREAU OF ETHNOLOGY

TO THE

SECRETARY OF THE SMITHSONIAN INSTITUTION

1880-'81

BY

J. W. POWELL
DIRECTOR

WASHINGTON
GOVERNMENT PRINTING OFFICE
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SMITHSONIAN INSTITUTION, BUREAU OF ETHNOLOGY,

Washington, D. C., September 9, 1882.

Prof. SPENCER F. BAIRD,

Secretary Smithsonian Institution, Washington, D. C.:

SIR: I have the honor to transmit herewith my second annual report as Director of the Bureau of Ethnology.

The first part of the volume consists of a brief account of the operations of the Bureau for the fiscal year; the second, of a series of papers by my assistants, illustrating the methods and results of the researches prosecuted under the direction of the Bureau.

It will be seen that investigations have been pursued in the four great departments of objective human activities, viz, arts, institutions, languages, and opinions; the design being to prosecute research in a systematic manner. It is believed that the facts in each field of research throw such light upon each other field that one cannot be neglected without injury to the others.

The study of the arts is but the collection of curiosities unless the relations between arts, institutions, languages, and opinions are discovered. The study of institutions leads but to the discovery of curious habits and customs unless the deeper meaning thereof is discovered from arts, languages, and opinions. In like manner the study of language is but the study of words unless philologic research is based upon a knowledge of arts, institutions, and opinions. So also the study of opinions is but the collection of mythic stories if their true meaning is not ascertained in the history of arts,

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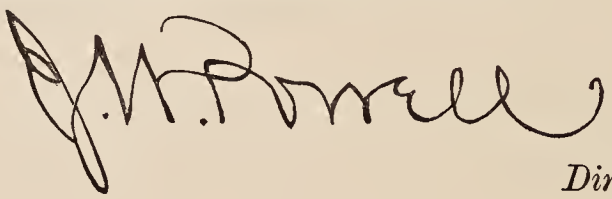
institutions, and languages. For this reason the four great departments of objective activities have been the subject of systematic investigation.

Permit me to express my thanks to yourself for your hearty co-operation in the prosecution of the work and for the wise counsel and direction you have given.

I am, with respect, your obedient servant,



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SECOND ANNUAL REPORT

OF THE

BUREAU OF ETHNOLOGY.

BY J. W. POWELL, DIRECTOR.

INTRODUCTORY.

Researches among the North American Indians, as directed by act of Congress, have been diligently prosecuted during the fiscal year 1880–'81. The plan of operations has consisted in—

First. The direct employment of scholars and specialists to conduct investigations and prepare the results for publication.

Second. In inciting and guiding research immediately conducted by collaborators not directly connected with the Bureau of Ethnology. This branch of effort has been successful not only in this but in distant lands. The contributions already received from many parts of the world relating to the lower stages of culture among other peoples have been of great value in elucidating the problems presented in North America. This collaboration has been obtained, first, by the wide circulation of the First Annual Report of the Bureau and of the three publications which preceded it, viz, "Introduction to the Study of Indian Languages," "Introduction to the Study of Mortuary Customs," and "Introduction to the Study of Sign Language," also by the similar circulation of subsequent publications hereinafter mentioned; second, by correspondence with persons whose ascertained abilities and opportunities afforded a reasonable hope of their useful co-operation.

By these agencies it has become generally known that contributions of the character explained were invited and would be published speedily with due credit. The numerous and important responses to requests for assistance have been and will continue to be thankfully acknowledged in the several publications to which they are germane. The objects of savage and barbaric art contributed through the agencies mentioned have been deposited in the National Museum and receive appropriate public acknowledgment therefrom.

PUBLICATIONS.

INTRODUCTION TO THE STUDY OF INDIAN LANGUAGES, BY MAJOR J. W. POWELL.

In the year 1877 the Director of the Bureau published an "Introduction to the Study of Indian Languages," which was widely distributed for the purpose of giving the direction and explanation necessary for the proper collection of linguistic material. More thorough knowledge on the subject and the experience of difficulties encountered demanded the preparation of a new edition much enlarged and improved, with revised schedules of words, phrases, and sentences to be collected, which was issued by the Bureau in 1880. It now consists mainly in those explanations of characteristics which have been found to best meet the wants of persons practically at work in the field on languages with which they are not familiar. Besides the explanations of a strictly philologic character, such relating to other branches of anthropology were added (embracing arts, habits, customs, institutions, and opinions—in fact, the subject-matter of thought embodied in the several languages) as would assist in the full comprehension of the latter. A language, when mastered in this manner, affords in turn the key to most interesting and otherwise undiscoverable anthropologic facts. The scope of the attention given to such subjects, as they are connected with language, is exhibited by the list of the schedules of words and phrases other than those used for grammatic purposes, viz, Persons, Parts of the Body,

Dress and Ornaments, Dwellings, Implements and Utensils, Food, Colors, Numerals, Measures, Divisions of Time, Standards of Value, Animals, Plants, &c., Geographic Terms, the Firmament, Meteorologic and other Physical Phenomena and Objects, Kinship, Social Organization, Government, Religion, Mortuary Customs, Medicine, Amusements.

In each of the schedules above mentioned an explanation was given of certain anthropologic facts necessary to the proper understanding of the subjects, so that the student might as far as possible be put in possession of the thoughts of the Indian whose language he was endeavoring to compile.

As the study of an unwritten language must commence by committing it to writing, and as no alphabet used by a civilized people will represent distinctly all the sounds of Indian languages, the adoption of a proper alphabet became of prime importance. For many reasons the Roman alphabet was selected for use, with numerous modifications, the following fundamental rules being observed:

I. The Roman alphabet must be used without additions, and with only such diacritical marks as are found in ordinary fonts of type.

II. Each sound must have a letter of its own.

III. Each character must be used to represent but one sound.

IV. The Roman alphabet must be used for sounds in the Indian tongue the same as or kindred to the sounds for which the letters are used in the English and other civilized languages.

This alphabetic scheme with copious illustrations by examples has proved so successful in operation that collectors accustomed to former schemes have voluntarily, though at great labor, copied their manuscripts into that possessing such manifest advantages.

Instruction specially adapted to Indian languages was also introduced upon the topics of new words, number and gender of nouns, demonstrative and adjective pronouns, personal and article pronouns, transitive verbs, possession, intransitive verbs, adjectives, adverbs, prepositions and nouns used as verbs, and

voice, mode, and tense. Further sections were devoted to the suggestion of additional investigations, to the best mode of studying materials collected, and to the rank of Indian languages as instruments for the expression of thought. The work therefore was designed, first, to briefly describe Indian languages in those characteristics commonly found and more necessary to the student yet uninitiated; second, to lead the investigation by natural steps from that which is easily attained to that which is more difficult; third, to put the student in possession of such general anthropologic facts as are necessary to the intelligent prosecution of his work; and, fourth, to provide a practicable method of reducing an unknown language to writing.

HOUSES AND HOUSE-LIFE OF THE AMERICAN ABORIGINES, BY LEWIS H. MORGAN.

In the year 1881 the comprehensive and important work of Hon. Lewis H. Morgan, "Houses and House-Life of the American Aborigines," was issued as Volume IV of Contributions to North American Ethnology. Its distinguished and lamented author, the pioneer of American anthropology, and recognized throughout the world as a leader in that science, has died since the publication of this his last scientific production, containing the matured results of the studies of his long and industrious life.

The main purpose of the work was to set forth the house-life and domestic institutions of the North American Indians as explaining the characteristics of Indian life. Earlier writers, with greater opportunities, have been markedly and unfortunately inattentive to this inquiry. These institutions appear to be more highly developed and firmly established than had been previously supposed, and faithfully portray the condition of mankind in two well-marked ethnic periods, viz, the Older Period and the Middle Period of barbarism, as they are called by Mr. Morgan, the first being well represented by the Iroquois and several other tribes, and the second by the Aztecs, or ancient Mexicans, and the Indians of Yucatan and Central America. In no part of the earth now understood through

history or exploration were these two stages of human progress so well exemplified as by the Indian tribes of North America, with such diversities as varying degrees of advancement and varying degrees of environment of the several tribes would naturally produce. From the ascertained laws governing that advance, from the uniformity of their operation, and from the necessary limitations of the development of intelligence, it may be inferred that our own remote ancestors passed through a similar experience and possessed corresponding institutions. By this study, therefore, some portion of the lost history of our own race may be recovered, the Aryan family having preserved but to a limited extent, and that unconsciously, the data of its history prior to the closing period of barbarism.

Mr. Morgan concludes from his researches that the family, during the above-mentioned stages of progress, was too weak an organization to face alone the struggle of life, and sought a shelter for itself in large households composed of several families. The house for a single family was exceptional throughout aboriginal America, while the house large enough to accommodate several families was the rule. Moreover, the habitations were occupied as joint tenement houses. There was also a tendency to form the households on the principle of gentile kin, the mothers with their children being of the same gens or clan.

The contents of the volume, which is illustrated by many plans and sketches, include: social and governmental organization; the law of hospitality and its general practice; communism in living; usages and customs with respect to land and food; and descriptions of the houses of Indians, classed as, 1st, those north of New Mexico; 2d, those of the sedentary Indians of New Mexico; 3d, houses in ruins of the sedentary Indians of the San Juan river and its tributaries; 4th, houses of the mound-builders; 5th, of the Aztecs, or ancient Mexicans; and, 6th, of the sedentary Indians of Yucatan and Central America.

The work is of the highest value in correcting errors and exaggerations still prevalent, in removing the misconceptions

and erroneous interpretations encumbering the original records made by incompetent observers, and in directing further research on philosophic principles.

LINGUISTIC WORK.

As was explained in the First Annual Report, prime importance is attached to linguistic researches. Without fundamental knowledge of those languages which can still be successfully studied, all other anthropologic peculiarities of the tribes speaking them will be imperfectly understood. The early publication of grammars and dictionaries connected with which are texts, or a body of literature obtained from Indian authorities, to illustrate the facts and principles of the language, while also recording the genuine aboriginal philosophy and traditions, has, therefore, been regarded as essential. Interest in the Indians, which hitherto has been vague and ill-directed, even when most active, will by this means be gratified with an abundance of authentic material, and the models furnished will be imitated and doubtless improved by scientific workers not connected with the Bureau.

Three important contributions to Indian linguistics have been partly prepared and in part printed during the year, but on account of the slow progress through the press of publications of this character, requiring minute attention and many revisions, they have not yet been issued.

THE ȼEGIHA LANGUAGE, BY REV. J. OWEN DORSEY.

The ȼegiha language, spoken by that linguistic group of the great Siouan stock which is composed of the Ponka, Omaha, Kansas, Osage, and Kwapa tribes, has for a number of years been studied by Mr. Dorsey, who was long resident among those Indians, and has since revisited them for this special purpose. His Dictionary and Grammar, accompanied with myths, historical accounts and dictated papers, will be a more thorough presentation of an Indian language than has yet been published.

THE KLAMATH LANGUAGE, BY MR. A. S. GATSCHET.

This Oregonian language, spoken by the Modocs and the Indians of Klamath Lake, shows many important characteristics. Its comprehensive and intelligent discussion by Mr. Gatschet, with a copious dictionary and texts on the general plan before mentioned, is the result of his personal visits to the tribes, with the advantage of high linguistic attainments of a general character, by which the prosecution of the special study was rendered more expeditious and more accurate. His work is in press.

THE DAKOTA LANGUAGE, BY REV. S. R. RIGGS.

The constant study of the Dakota language by Rev. S. R. Riggs, during his life passed among the Indians of that stock, has shown that his Dictionary and Grammar, published in 1852 by the Smithsonian Institution, though of high and deserved repute, required correction, revision, and enlargement. This undertaking he commenced during the year 1880–'81, and 665 quarto pages of it are now in type. The dialects embraced are those spoken by the body of Indians popularly known as Sioux, and designated by the Bureau as the Dakota division of the Siouan linguistic family.

BIBLIOGRAPHY OF NORTH AMERICAN PHILOLOGY, BY MR. J. C. PILLING.

The work of most general linguistic utility, which relates to all the languages of North America, is by Mr J. C. Pilling, being a Bibliography of North American Linguistics. It is an attempt to give, in alphabetic arrangement by authors, the full titles, in chronologic order, of all editions of works written in or upon any of the languages of North America. This repertory for the first time affords to students the essential information of all that has been done by their predecessors in the several directions toward which their studies may be turned. It will save in many cases duplication of labor, and bring into prominent notice material indispensable to thorough knowledge

which otherwise would be unknown. In the preparation of this volume Mr. Pilling has, in addition to extensive correspondence, been compelled to visit distant parts of the country for personal examination of libraries and collections.

Other linguistic volumes were in course of preparation during the year, no part of which was printed therein. Among these it is proper to mention the work of Mrs. Erminnie A. Smith, of Jersey City, on several of the Iroquoian dialects, and of Prof. Otis T. Mason on the Chata language.

ETHNOLOGIC WORK.

The First Annual Report of the Bureau, for the fiscal year 1879–'80, was printed during the year 1881, forming a volume, in large octavo, of 638 pages. In addition to the papers in that Report, which it is not deemed necessary now to recapitulate, work upon other papers was continued or commenced during the year as follows:

SIGN LANGUAGE AND PICTOGRAPHS, BY BREVET LIEUT. COL. GARRICK MALLERY, U. S. A.

The researches continued by Col. Garrick Mallery, upon gesture speech and pictographs, are connected on the one hand with philology and on the other with many points of anthropologic interest. These studies elucidate the attempts of the human mind in the expression of ideas independent of, whether or not prior to, the use of oral language. They show that direct visible expression of ideas, as distinct from their audible expression, has not been confined to the North American Indians, though its systematic and general use by them is the most instructive exhibition of it now remaining among speaking men, and that a thorough comprehension of it as practiced by them is indispensable to any full discussion of the subject. Sufficient examples of it have been collected from many other bodies of men, ancient and modern, to suggest important relations, not only between all the modes of expression, but be-

tween the particular visible forms produced by different peoples for the several ideas. Colonel Mallery's paper on sign-language in the First Annual Report of the Bureau has been copied and noticed in scientific publications to such an extent as to awaken correspondence and collaboration of great value in the completion of the monograph on the subject in which he has been engaged. In addition, he has commenced an Introduction to the Study of Pictographs, with the hope of obtaining similar assistance in that study, so closely connected with the one last mentioned—sign language being the transient direct expression, and pictographs the permanent direct expression, of ideas to the eye. The latter became the indirect expression when applied in the shape of writing to record oral speech. To the forms of pictographs, therefore, may probably be traced the structure of all the characters of writing used by man. The subject includes, besides ideographs, the interpretation of conventionalized or symbolic designs and the evolution of graphic art. Interesting results are expected from the comparison of the large amount of material collected from North America with that known to exist in other parts of the world.

MORTUARY CUSTOMS, BY DR. H. C. YARROW, U. S. A.

Dr. Yarrow has continued researches into the mortuary customs of the North American Indians, with discussion of comparisons with them and parallels to them taken from history and all authorities in print or otherwise attainable. The large correspondence conducted and the fund of information accumulated for the monograph on this subject, in preparation by him, will render it exhaustive, while the correlation of facts collected increases its importance in relation to the philosophy and psychology of the whole human family. The scope of this work, the interest in which is popular as well as scientific, has been already explained in the First Annual Report.

INDIAN CESSIONS OF LAND, BY MR. C. C. ROYCE.

Mr. C. C. Royce was engaged during the year in the preparation of a Historical Atlas of Indian affairs, designed to show

by a series of charts the boundaries of the different cessions of land made to the United States from time to time by the various Indian tribes from the organization of the Federal Government to the present date. This work will also include within its scope a historical text, giving the date of each treaty, name of tribe or tribes with which concluded, an abstract of the principal provisions thereof, together with a narrative of the incidents connected with its negotiation and the causes leading thereto. The atlas will also contain a list of the principal mountain chains, rivers, lakes, and other natural objects, with a schedule of the different names by which each has been known from its earliest discovery to the present day, giving reference to authorities and dates. In the progress of this work much laborious research has been made among the maps and plats in the Library of Congress and the General Land Office. Original diagrams and reports have also been examined and an extended correspondence conducted with individuals and historical societies in the several States.

The necessary data for indicating the cessions of land within the present limits of the States of Ohio, Indiana, Illinois, Tennessee, Georgia, Alabama, Mississippi, and Michigan have been almost wholly obtained. Much progress has also been made in a like manner with the States of Wisconsin, Iowa, Missouri, Arkansas, Minnesota, Kansas, and Nebraska.

This paper, when completed, will not only exhibit with authoritative detail many particulars now only vaguely known concerning the habitat and migrations of the several tribes, but will be of special convenience to lawyers and officials concerned in the investigation of original titles to land in the larger part of the United States.

The difficult and tedious undertaking of classifying on a linguistic basis all the tribes, remaining and extinct, of North America has been continued by the Director, and progress has been made in their synonomy, or the reference to a correct standard of their multiplied and confusing titles as shown in literature and in common usage. The system of nomenclature

decided upon, together with a series of charts displaying the habitat of all tribes when discovered and at subsequent periods, will be published as the most acceptable aid to working students of Indian history.

Prof. Otis T. Mason was engaged during the year in a presentation of the important subject of education among the Indians, embracing historically all the attempts made in that direction and their several results, together with the present condition of advance in literacy and general culture.

The subject of the education and advance of the tribes in civilized industries, with an exhaustive account of their pristine industries and means of subsistence, was commenced by Mr. H. W. Henshaw.

The following papers are in preparation:

Introduction to the study of Sociology, as suggested by the tribal governments of North America;

Introduction to the study of North American Mythology;

Introduction to the study of North American Technology; and

Introduction to the study of the Medicine Practices of the North American Indians.

FIELD WORK.

Mr. H. W. Henshaw spent a large part of the year in personal examination of the tribes on the Pacific slope, including those of Washington Territory. Rev. S. D. Hinman visited the Dakotas, and Rev. Clay MacCauley, besides reporting upon the Ojibwas, made the first ethnologic exploration of the Seminoles of Florida ever successfully attempted. The copious notes of these gentlemen will be utilized in future.

The large amount of field work performed by Mrs. Erminnie A. Smith, Mr. Frank H. Cushing, and Mr. James Stevenson is hereinafter mentioned in connection with papers presented by them.

PAPERS ACCOMPANYING THIS REPORT.

It has been before promised that the effort of this Bureau will be to prosecute work in the various branches of North American anthropology on a systematic plan, so that every important field may be cultivated, limited only by the amount appropriated by Congress. Each of the papers appended to this report has its proper place in the general scheme, the scope of which they, together with the other publications before noted, serve to indicate, and each was prepared with a special object. The line of research pursued by the several papers, with the circumstances attending their preparation, may be conveniently designated by some introductory remarks upon each of them in the order which they follow in this volume.

ZUÑI FETICHES, BY MR. FRANK HAMILTON CUSHING.

Mention was made in the First Annual Report that Mr. Frank H. Cushing, of the Smithsonian Institution, had proceeded to and was at the time residing at the pueblo of Zuñi, New Mexico, to study the language, mythology, sociology, and art of its inhabitants. During the winter of 1879–'80 he had by diligent study acquired a conversational knowledge of the language of the Zuñis, and had made numerous sketches and notes on their sacred dances and on the meetings of some of their secret societies, which he succeeded in observing.

During the succeeding summer and autumn he continued his investigations into the mythology, traditions, and sacerdotal as well as governmental institutions of the Indians, and explored many of the traditional ruins within a radius of 50 miles of Zuñi. Before the end of the year he had so far acquired knowledge of the Zuñi language as to take an important position in councils, and was made chief councilor of the nation.

This increased knowledge also enabled him to learn traditions bearing on historic matters.

Among these was one concerning the ruin of Ke'iá-ki-me, at the base of Tâ-ai-yállon-ue (Thunder Mountain), a mesa stronghold three miles east of Zuñi, which related to the death

of "The Black Mexican with thick lips," in whom he recognized the "Barbary Negro Estevanico," of Cabeça da Vaca and Marco de Niça, known to have been killed about the year 1539 in the neighborhood. Inquiries instituted by this recognition led to the specific determination of the sites of nearly all the "Seven Cities of Cibola," the principal of which—A-ha-cus, in Spanish (Ha-wi-kuhs, in Zuñi)—was situated at Ojo Caliente. He conjectured, also, that Cibola was derived from the Zuñi name of their country, She-wo-na or Shi-wi-na, which led to the belief, ultimately confirmed by old Spanish records, that there was no one city of Cibola, but that all together were known by that name.

During the month of January, 1881, he made a trip with one companion along the line of ruins marking the sites of the pueblos referred to in the Zuñi ritualistic recitals, as far west as the valley of the Colorado Chiquito. He not only discovered a series of monuments, but also verified the correctness of the recitals above referred to by a study of the mythologic pictographs with which many of them and the surrounding rocks were covered.

Some 15 miles south from the town of San Juan, or Bardeto, he found in the same valley a remarkable line of conical hills, containing craters, the caverns of which had been used by the ancestors of the Zuñis as sacrificial depositories. In these he had the good fortune to discover numerous well-preserved sacrificial plumed sticks, and many conventionally decorated prayer-slats or altar-tablets, bows, arrows, basket-work, and fabrics of the ancient inhabitants of the valley. One of his discoveries was that of ancient cigarettes of cane and corn-leaves, proving that the cigarette, as well as the pipe, was of American origin.

During the succeeding spring, with one soldier and a citizen, he again set out for the cave country, re-exploring not only the caverns before visited but also other important grottoes on the Rio Concho, and the caves still used as sacrificial depositories by the Zuñis, near La Laguna del Colorado Chiquito, north of San Juan. The collections, the greater portions of which were cached, aggregated over two thousand specimens.

On this expedition he examined also numerous important ruins, many of which were perfectly preserved. One, situated on a mesa 30 miles south of San Juan, proved to be uninterruptedly over 3 miles in length, an example, doubtless, of successive occupation and abandonment.

The results obtained by Mr. Cushing's explorations in Zuñi, where he still remains, have been worthy of the industry and ability, the courage and self-denial, with which they have been prosecuted. Important facts of the most varied character have been brought to light, many of them substantiated or illustrated by objects discovered and transmitted. Copious notes on the several branches of study have been made by him, and on some of them he has commenced to write treatises, which he has withheld from publication only to insure their completeness and accuracy. The paper now presented, on Zuñi Fetiches, is a specimen of the novel and curious information which his researches furnish.

The philosophy of the Zuñis is an admirable example of that stage in savagery where a transition is shown from zoötheism into physitheism, with survivals of hekastotheism. In this stage fetichism is the chief religious means of obtaining success and protection. The fetiches most valued by the Zuñis are natural concretions or eroded rock-forms, having an obvious or fancied resemblance to certain animals, or objects of that nature in which the evident original resemblance has been heightened by artificial means. It is supposed that these fetiches are actual petrifactions of the animals represented by them, which retain their vital forces for certain magic powers and religious purposes. This belief is explained in a remarkable epic, metrical and sometimes rhythmical, and filled with archaic expressions, which is in part translated by Mr. Cushing

A noticeable point in the paper is the elaborate and systematized relationships shown among and between the animals, the animal gods, and other supernatural beings having animal or combined animal and human personalities. This constitutes a theistic society with an elaborate hierarchy and regulated domains, powers, and obligations. Such minuteness in multiformity, as well as the precision of the beliefs and cere-

monials stated, will be surprising, not only to persons who have been taught the old fiction of the Indian's monotheism, but to those who have regarded his religious philosophy to be vague and chaotic. The facts are presented with the same corroboration of etymologies in language used so successfully by scholars in the study of Eurasian myths, and with further verification by objects in the National Museum, figured in the illustrations.

MYTHS OF THE IROQUOIS, BY MRS. ERMINNIE A. SMITH.

The myths, mythic tales, and folk-lore of a savage or barbarian people correspond with the literature of civilization. In them, with proper attention to the archæology embraced in the language, scientifically studied, in which they are expressed, may be found all of its philosophy and all of its history and prehistoric customs that can ever be known.

These myths and tales are constantly repeated, often with publicity and ceremony, and the audiences having heard them many times, with the precise verbal memory characteristic of intelligent tribes to whom writing is unknown, are critical as to accuracy of rendition. Furthermore, certain words, especially names and titles preserved in the narratives, are sometimes archaic, requiring better etymologists than the modern Indians to ascertain their true meaning, and are only understood when the language has been reduced to writing by linguistic scholars. The narrators do not understand or pretend to explain what they have received as handed down to them, but simply produce what they have memorized. When collected with thorough understanding of the language, and with collation of the several versions, these oral traditions may be presented in substantial purity with intrinsic evidence of their antiquity.

Many tales have been published of the sayings and doings of the Indian gods and heroes, and some relating to their home-life, institutions, and customs, but few of these have been free from blunder or perversion. Generally the dubious medium of interpreters was necessary, and the disposition to poetize or

color with European sentiment was often apparent, even when distortion in support of favorite theories did not destroy the spirit and real significance of the original.

It has been before mentioned that, by the plan of the Bureau, the myths and folk-lore of the several tribes are preserved and recorded in their own languages, with interlinear translation, and without foreign coloring or addition, in connection with the several dictionaries of those languages. The paper of Mrs. Erminnie A. Smith, though not at this time presenting the original language, is written after her reductions of the original to writing, in the course of her linguistic work, and after prolonged residence among the Iroquois tribes, into one of which, the Tuscarora, she was adopted. It is, therefore, an authoritative rendering of some of the Iroquoian myths, both in their letter and spirit. Such of them as have appeared in other forms will be favorably contrasted with those versions in European languages, and others have been for the first time collected by her. Special interest will be awakened by the purely aboriginal character of the Great Heads, the Stone Giants, and the Echo God as now disclosed.

ANIMAL CARVINGS FROM MOUNDS OF THE MISSISSIPPI VALLEY, BY MR. HENRY W. HENSHAW.

While industry is required to rescue from oblivion the languages, institutions, and all anthropologic peculiarities of the Indians, so fast disappearing by absorption, no less care is needed to correct, by careful analysis, the many false statements which corrupt the mass of literature concerning them, upon which prevalent theories have been based. Even after facts have been established and errors eliminated, the science of anthropology must call in the aid of other sciences to determine the value and application of the data comprised in its field of study. The discreditable fact that until within a few years past no real advance has been made in the ethnology of North America is by no means owing to the paucity of published material, but rather to its enormous quantity, confused by its unordered bulk and filled with contradictions and absurdities. Of the costly libraries devoted to collections on this special

subject, the catalogues of which are ponderous tomes, but few pages are of actual value except to a trained scholar who can discern the germ of truth even in a blundering statement, and whose own knowledge is a touchstone for the detection of spurious productions.

The most active cause in the distortion and fabrication now easily exposed by scientific methods of examination, but once accepted as verity, was the general resolve to designate as before and above all other points of interest the particular body of men in the eastern hemisphere to which the Indians belonged and from which they made their exodus. That they did come from the "old" world, the one known to history, was postulated, and as all the so-called "races of mankind" were more confidently enumerated in past generations than by the most recent authorities, it was deemed essential to fix the place of the Americans in the then undoubted though now rejected classification. As a secondary but closely connected obligation, their lines of migration within this continent were to be defined. With the unscrupulous zeal common to polemics, all observations were made through the medium adapted to a preconceived theory, while the garbling and perversion of the lower class of writers supplemented the phantasies of those better intentioned.

Upon the discovery and partial exploration of the numerous mounds in the great basin of the Mississippi, a new field was opened to enthusiastic theorists. Ignoring the fact that many of the historic Indians have practised the building of mounds, indeed that some are still building them, it was assumed that these works were the vestiges of a dense and extinct population whose advance in civilization was much superior to that of the known American Indians. From the size and forms of the mounds, their location, and the objects contained in them, writers have set forth the origin, migration, numbers, institutions, art, and religions of their builders. This attempt was not illegitimate nor impracticable of execution if made after complete exploration and comparison in a scientific spirit, by experts possessing the requisite special training. It will be the duty of the Bureau of Ethnology to devote careful attention

to this interesting field of archæology. But those who have hitherto conducted the researches have betrayed a predetermination to find something inexplicable on the simple hypothesis of a continuous Indian population, and were swept by blind zeal into serious errors even when they were not imposed upon by frauds and forgeries. Some of the latter, consisting of objects manufactured for sale to supply the manifested craving after the marvelous, and even inscribed tablets suggesting alphabetic or phonetic systems, have recently been exposed by the agency of this Bureau.

Some of the most deservedly respected of the writers on the branch of research indicated have deduced important inferences from the asserted high degree of excellence in the animal carvings taken from the mounds, and their apparent portrayal of the forms of certain animals not now found in the same region. Mr. H. W. Henshaw, skilled as a naturalist, especially as an ornithologist, and familiar by personal exploration with a large part of our national territory, was led to examine into the truth of these statements, repeated from author to author without question or criticism, and used as data in all discussions relating to the mounds. The result is in the important paper now published. His conclusions, which, from the evidence adduced, seem to be incontrovertible, are of such material consequence that they are here repeated, as follows:

"First. That, of the carvings from the mounds which can be identified, there are no representations of birds or animals not indigenous to the Mississippi Valley; and consequently, that the theories of origin for the Mound Builders suggested by the presence in the mounds of carvings of supposed foreign animals are without basis.

"Second. That a large majority of the carvings, instead of being, as assumed, exact likenesses from nature, possess in reality only the most general resemblance to the birds and animals of the region which they were doubtless intended to represent.

"Third. That there is no reason for believing that the

masks and sculptures of human faces are more correct likenesses than are the animal carvings.

"Fourth. That the state of art-culture reached by the Mound Builders, as illustrated by their carvings, has been greatly overestimated."

Mr. Henshaw's paper, while of high value as a successful destructive criticism, liberating an extensive field of research from much error and fraud, also furnishes an instructive comparison of the art shown in the mounds with that of the modern Indians, and exhibits the relations of conventionalism to imitation in the evolution of graphic art.

NAVAJO SILVERSMITHS, BY DR. WASHINGTON MATTHEWS, U. S. A.

Dr. Washington Matthews, assistant surgeon in the United States Army, distinguished in anthropology from his "Ethnography and Philology of the Hidatsa Indians" and other works, has spared time from his official duties at Fort Wingate to continue his studies of the Indian tribes accessible from his post. With his persevering industry he has brought into notice the peculiar appliances and processes of the silversmiths among the Navajos. Some interest connected with prehistoric inquiries is attached to this exhibition of aboriginal art. It is known that at the period of the Spanish invasion the Mexican tribes had attained some skill in metallurgy, and inference has been made that the sedentary Indians of New Mexico used the forge. The Navajos, from their proximity, may have learned the art from these sources, and their adaptation to it is suggested by the expertness of other tribes in the same linguistic stock—the Athabaskan, though far distant in habitat, whose gold ornaments made in British Columbia and Alaska are remarkable for beauty.

However the art may have become known to the Navajos, their productions in it have improved of late years by their notice of European appliances, especially their voluntary employment of the fine files and emery paper now procurable. The paper of Dr. Matthews is a valuable chapter to the study of Indian industries, and presents additional evidence that the

aboriginal mind is not incapable of arriving at success in civilized industries without violent compulsion or interminable training, provided that judgment be exercised in the work at first required.

ART IN SHELL OF THE ANCIENT AMERICANS, BY MR. WILLIAM H. HOLMES.

This paper is an example of the proper mode of conducting research into the archæology of America, especially as it is to be studied from the mounds—one of the main respositories of all that may be learned of precolumbian human life. This mode is the correct classification of accurately observed facts, within such limits as to be practically exhaustive of the field selected, and by an observer especially adapted by talent and training to that selected field.

The range of art in shell, though having well-defined limits, is more extensive than has hitherto been generally known. The shells of mollusks were doubtless used at a very early period as vessels for food and water, and were commonly known to pristine men who, attracted by the food products of the great waters, resorted to the sea shore or the banks of estuaries for residence or annual migrations. In time it was found that modifications of the natural shell would increase its usefulness, and the breaking away of useless parts and sharpening of edges were readily suggested. As transportation became desirable, changes were made for that object, one obvious device being the artificial repetition of perforations natural to certain shells, through which they were strung on vines or cords of fiber and suspended about the neck—probably originating the use of pendants as mere personal ornaments. The farther the objects became transported from the source of supply, in the course of migrations or in barter, the higher became the value attached to them, the greater the varieties in their forms, and the more diverse the uses to which they were applied. As is known to travelers among far inland tribes, the shell of the sea has often become connected with their superstitions, and are consequently highly prized.

Shells, and the objects made from them, are so destructible that they have not often been preserved from antiquity to tell the stories of a prehistoric world more enduringly impressed in stone. Had not the practice prevailed of burying them with the dead in the repose of protected graves or tumuli, they would rarely appear as articles of archæologic instruction. But in the great region in North America which is filled with artificial mounds, exploration discloses deposits of shells of so great a number and in such a variety as to form an important division supplementary to the age of stone. It is shown from these discoveries that the nature of the material has given a bias to artificial products, and has impressed its forms and functions upon art products in other materials. The shell art of the people who built the mounds records a noteworthy and unwonted effort of the human mind, distinctive in the forms developed as in the material, and so unprecedented in some of the ideas represented as not yet to be fully comprehended. What is already ascertained, however, constitutes an essential chapter in the evolution of human culture.

Although Mr. Holmes enjoys high repute as an artist, his pursuits have also been scientific, by which combination of training he is exceptionally fitted for the work undertaken. The artist appreciates beauty of execution and idea, can detect resemblances and ruling motives in art, and can provide the requisite graphic illustrations, in which the paper now published excels. The examination and discussion of the objects, with relegation to categories, demanded scientific methods. Severe study was also devoted to the comparison and application of all that can be gleaned from literature bearing upon the subject.

With equal caution and modesty Mr. Holmes, while offering suggestions with force and penetration, has announced no theories. In the most original and individual part of his work—that discussing the engravings upon gorgets—he simply contends for their significance and for their elevation from the category of trinkets into a serious art, leaving for others the interpretation. A deduction not made by the author may perhaps be suggested by the comparisons from art and literature

furnished by him, to the effect that the artistic methods of the Mound Builders are traceable among the historic tribes of North America, tending to show that, contrary to the once current belief based exclusively on the same evidence, there is no marked racial distinction between them.

ILLUSTRATED CATALOGUES OF THE COLLECTIONS OBTAINED FROM THE INDIANS OF NEW MEXICO AND ARIZONA IN 1879 AND 1880, BY MR. JAMES STEVENSON.

During the field seasons of the years 1879 and 1880, extending into 1881, Mr. James Stevenson was in charge of a party to make explorations in and obtain collections from the country occupied in part by the Indians of New Mexico and Arizona. The most important and most fruitful field was the pueblo of Zuñi, but valuable specimens were also secured from Wolpi, Laguna, Acoma, Cochiti, San Domingo, Tesuque, Santa Clara, San Juan, Jemez, Old Pecos, the Cañon de Chelley, and from the Jicarillas. The objects procured by these expeditions, now deposited in the National Museum and enumerated, together with sufficient description, in the catalogue published, amount to three thousand nine hundred and five, the most interesting and typical of them being illustrated, for the benefit of students unable to examine the originals, in three hundred and sixty-eight figures. The specimens consist of implements of war and hunting, articles used in domestic manufacture, clothing and personal ornaments, basketry, horse trappings, images, toys, stone tools, musical instruments, objects used in religious ceremonies and in games, fabrics, paints, dye stuffs, medicines, and many other articles. The most precious part of the collection, however, is the pottery, which Mr. Stevenson divides into six classes: 1, the red or uncolored; 2, the brown ware; 3, the black ware; 4, the cream white decorated in colors; 5, the red ware decorated; and 6, the ancient pottery.

Mr. Stevenson's remarkable success has been accomplished, not only by great energy, but by tact and skill in winning the confidence of Indian tribes, resulting from his experience in former expeditions. His catalogue is by no means a mere enumeration, but is accompanied by a judicious amount of dis-

cussion and comparison which render the paper in itself of substantial value. He is engaged upon a further and more minute presentation of industries and technical processes.

These expeditions have secured only just in time, and deposited for permanent study, the materials necessary to understand the life and history of a most interesting body of people. While it will always be regretted that similar exhaustive explorations, shown now to be feasible, had not been applied to many other tribes whose original possessions have been lost, some yet remain to reward well-directed effort, which it is the purpose of this Bureau to continue.

CLASSIFICATION OF EXPENDITURES MADE DURING THE FISCAL YEAR ENDING JUNE 30, 1881.

Classification.	Third quarter, 1880 (voucher 55).	Fourth quarter, 1880 (voucher 55).	First quarter, 1881 (voucher 39).	Second quarter, 1881 (voucher 13).	Total.
A.—Services	$3,322 40	$4,666 92	$2,860 32	$1,136 19	$12,985 83
B.—Traveling expenses	.....	852 80	91 65	44 25	988 70
C.—Transportation of property	2 50	72 50	80 87	.....	155 87
D.—Field subsistence	17 50	156 54	324 46	.....	498 50
E.—Field supplies and expenses	5 00	93 22	.....	.....	98 22
F.—Field material	.....	55 60	.....	.....	55 60
G.—Instruments	.....	.....	.....	.....	.....
H.—Laboratory material	.....	.....	.....	.....	.....
I.—Photographic material	797 67	344 75	129 62	.....	1,272 04
K.—Books and maps	.....	5 00	20 26	.....	25 26
L.—Stationery and drawing material	29 76	12 50	87 51	62 08	191 85
M.—Illustrations for reports	69 10	391 00	110 55	.....	570 65
N.—Office rents	.....	.....	.....	.....	.....
O.—Office furniture	25 00	.....	1,831 30	22 95	1,879 25
P.—Office supplies and repairs	.....	4 90	322 82	80	328 52
Q.—Storage	.....	1 00	.....	.....	1 00
R.—Correspondence	4 00	5 55	21 19	.....	30 74
S.—Articles for distribution to Indians	26 80	364 62	161 50	.....	552 92
T.—Specimens	.....	365 05	.....	.....	365 05
Total	4,299 73	7,391 95	7,042 05	1,266 27	20,000 00

ACCOMPANYING PAPERS.

SMITHSONIAN INSTITUTION——BUREAU OF ETHNOLOGY.

ZUÑI FETICHES.

BY

FRANK HAMILTON CUSHING.

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ZUÑI FETICHES.

By Frank H. Cushing.

ZUÑI PHILOSOPHY.

The Á-shi-wi, or Zuñis, suppose the sun, moon, and stars, the sky, earth, and sea, in all their phenomena and elements; and all inanimate objects, as well as plants, animals, and men, to belong to one great system of all-conscious and interrelated life, in which the degrees of relationship seem to be determined largely, if not wholly, by the degrees of resemblance. In this system of life the starting point is man, the most finished, yet the lowest organism; at least, the lowest because most dependent and least mysterious. In just so far as an organism, actual or imaginary, resembles his, is it believed to be related to him and correspondingly mortal; in just so far as it is mysterious, is it considered removed from him, further advanced, powerful, and immortal. It thus happens that the animals, because alike mortal and endowed with similar physical functions and organs, are considered more nearly related to man than are the gods; more nearly related to the gods than is man, because more mysterious, and characterized by specific instincts and powers which man does not of himself possess. Again, the elements and phenomena of nature, because more mysterious, powerful and immortal, seem more closely related to the higher gods than are the animals; more closely related to the animals than are the higher gods, because their manifestations often resemble the operations of the former.

In consequence of this, and through the confusion of the subjective with the objective, any element or phenomenon in nature, which is believed to possess a personal existence, is endowed with a personality analogous to that of the animal whose operations most resemble its manifestation. For instance, lightning is often given the form of a serpent, with or without an arrow-pointed tongue, because its course through the sky is serpentine, its stroke instantaneous and destructive; yet it is named Wí-lo-lo-a-ne, a word derived not from the name of the serpent itself, but from that of its most obvious trait, its gliding, zigzag motion. For this reason, the serpent is supposed to be more nearly related to lightning than to man; more nearly related to man than is lightning, because mortal and less mysterious. As further

illustrative of the interminable relationships which are established on resemblances fancied or actual, the flint arrow-point may be cited. Although fashioned by man, it is regarded as originally the gift or "flesh" of lightning, as made by the power of lightning, and rendered more effective by these connections with the dread element; pursuant of which idea, the zigzag or lightning marks are added to the shafts of arrows. A chapter might be written concerning this idea, which may possibly help to explain the Celtic, Scandinavian, and Japanese beliefs concerning "elf-shafts," and "thunder-stones," and "bolts."

In like manner, the supernatural beings of man's fancy—the "master existences"—are supposed to be more nearly related to the personalities with which the elements and phenomena of nature are endowed than to either animals or men; because, like those elements and phenomena, and unlike men and animals, they are connected with remote tradition in a manner identical with their supposed existence to-day, and therefore are considered immortal.

To the above descriptions of the supernatural beings of Zuñi Theology should be added the statement that all of these beings are given the forms either of animals, of monsters compounded of man and beast, or of man. The animal gods comprise by far the largest class.

In the Zuñi, no general name is equivalent to "the gods," unless it be the two expressions which relate only to the higher or creating and controlling beings—the "causes," Creators and Masters, "Pí-kwain=á-hâ-i" (Surpassing Beings), and "Á-tä-tchu" (All-fathers), the beings superior to all others in wonder and power, and the "Makers" as well as the "Finishers" of existence. These last are classed with the supernatural beings, personalities of nature, object beings, etc., under one term—

a. Í-shothl-ti-mon=á-hâ-i, from *í-shothl-ti-mo-na*=ever recurring, immortal, and *á-hâ-i*=beings.

Likewise, the animals and animal gods, and sometimes even the supernatural beings, having animal or combined animal and human personalities, are designated by one term only—

b. K'ia-pin=á-hâ-i, from *k'ia-pin-na*=raw, and *á-hâ-i*=beings. Of these, however, three divisions are made:

(1.) K'ia-pin-á-hâ-i=game animals, specifically applied to those animals furnishing flesh to man.

(2.) K'iä-shem-á-hâ-i, from *k'iä-we*=water, *she-man*=wanting, and *á-hâ-i*=beings, the water animals, specially applied not only to them, but also to all animals and animal gods supposed to be associated sacredly with water, and through which water is supplicated.

(3.) Wé-ma-á-hâ-i, from *we-ma*=prey, and *á-hâ-i*=beings, "Prey Beings," applied alike to the prey animals and their representatives among the gods. Finally we have the terms—

c. Ak-na=á-hâ-i, from *ák-na*=done, cooked, or baked, ripe, and *á-hâ-i*=beings, the "Done Beings," referring to mankind; and

d. Äsh-i-k'ia=á-hâ-i, from *ä'sh-k'ia*=made, finished, and *á-hâ-i*=beings, "Finished Beings," including the *dead* of mankind.

That very little distinction is made between these orders of life, or that they are at least closely related, seems to be indicated by the absence from the entire language of any general term for *God*. True, there are many beings in Zuñi Mythology godlike in attributes, anthropomorphic, monstrous, and elemental, which are known as the "Finishers or makers of the paths of life," while the most superior of all is called the "Holder of the paths (of our lives)," Hâ'-no-o-na wí-la-po-na. Not only these gods, but all supernatural beings, men, animals, plants, and many objects in nature, are regarded as personal existences, and are included in the one term *á-hâ-i*, from *á*, the plural particle signifying "all," and *hâ-i*, being or life,="Life," "the Beings." This again leads us to the important and interesting conclusion that all beings, whether deistic and supernatural, or animistic and mortal, are regarded as belonging to one system; and that they are likewise believed to be related by blood seems to be indicated by the fact that human beings are spoken of as the "children of men," while *all* other beings are referred to as "the Fathers," the "All-fathers," and "Our Fathers."

THE WORSHIP OF ANIMALS.

It naturally follows from the Zuñi's philosophy of life, that his worship, while directed to the more mysterious and remote powers of nature, or, as he regards them, existences, should relate more especially to the animals; that, in fact, the animals, as more nearly related to himself than are these existences, more nearly related to these existences than to himself, should be frequently made to serve as mediators between them and him. We find this to be the case. It follows likewise that in his inability to differentiate the objective from the subjective, he should establish relationships between natural objects which resemble animals and the animals themselves; that he should even ultimately imitate these animals for the sake of establishing such relationships, using such accidental resemblances as his *motives*, and thus developing a conventionality in all art connected with his worship. It follows that the special requirements of his life or of the life of his ancestors should influence him to select as his favored mediators or aids those animals which seemed best fitted, through peculiar characteristics and powers, to meet these requirements. This, too, we find to be the case, for, preeminently a man of war and the chase, like all savages, the Zuñi has chosen above all other animals those which supply him with food and useful material, together with the animals which prey on them, giving preference to the latter. Hence, while the name of the former class is applied preferably as a *general* term to all animals and animal gods, as

previously explained, the name of the latter is used with equal preference as a term for all fetiches (Wé-ma-we), whether of the prey animals themselves or of other animals and beings. Of course it is equally natural, since they are connected with man both in the scale of being and in the power to supply his physical wants more nearly than are the higher gods, that the animals or animal gods should greatly outnumber and even give character to all others. We find that the Fetiches of the Zuñis relate mostly to the animal gods, and principally to the prey gods.

ORIGIN OF ZUÑI FETICHISM.

This fetichism seems to have arisen from the relationships heretofore alluded to, and to be founded on the myths which have been invented to account for those relationships. It is therefore not surprising that those fetiches most valued by the Zuñis should be either natural concretions (Plate I, Fig. 6), or objects in which the evident original resemblance to animals has been only heightened by artificial means (Plate IV, Fig. 7; Plate V, Fig. 4; Plate VI, Figs. 3, 6, 8; Plate VIII, Figs. 1, 3, 4, 5; Plate IX, Fig. 1).

Another highly prized class of fetiches are, on the contrary, those which are elaborately carved, but show evidence, in their polish and dark patina, of great antiquity. They are either such as have been found by the Zuñis about pueblos formerly inhabited by their ancestors or are tribal possessions which have been handed down from generation to generation, until their makers, and even the fact that they were made by any member of the tribe, have been forgotten. It is supposed by the priests (Á-shi-wa-ni) of Zuñi that not only these, but all true fetiches, are either actual petrifactions of the animals they represent, or were such originally. Upon this supposition is founded the following tradition, taken, as are others to follow, from a remarkable mythologic epic, which I have entitled the Zuñi Iliad.

THE ZUÑI ILIAD.

Although oral, this epic is of great length, metrical, rythmical even in parts, and filled with archaic expressions nowhere to be found in the modern Zuñi. It is to be regretted that the original diction cannot here be preserved. I have been unable, however, to record literally even portions of this piece of aboriginal literature, as it is jealously guarded by the priests, who are its keepers, and is publicly repeated by them only once in four years, and then only in the presence of the priests of the various orders. As a member of one of the latter, I was enabled to

T. Sinclair & Son, lith., Phila.

PREY GOD FETICHES.

listen to one-fourth of it during the last recitation, which occurred in February, 1881. I therefore give mere abstracts, mostly furnished from memory, and greatly condensed, but pronounced correct, so far as they go, by one of the above-mentioned priests.

THE DRYING OF THE WORLD.

In the days when all was new, men lived in the four caverns of the lower regions (Á-wi-tën té-huthl-na-kwïn=the "Four Wombs of the World"). In the lowermost one of these men first came to know of their existence. It was dark, and as men increased they began to crowd one another and were very unhappy. Wise men came into existence among them, whose children supplicated them that they should obtain deliverance from such a condition of life.

It was then that the "Holder of the Paths of Life," the Sun-father, created from his own being two children, who fell to earth for the good of all beings (Ú-a-nam áteh-pi-ah-k'oa). The Sun-father endowed these children with immortal youth, with power even as his own power, and created for them a bow (Á-mi-to-lan-ne,= the Rain Bow) and an arrow (Wí-lo-lo-a-ne, = Lightning). For them he made also a shield like unto his own, of magic power, and a knife of flint, the great magic war knife (Sá-wa-ni-k'ia ä'-tchi-ë-ne). The shield (Pí-al-lan-ne) was a mere network of sacred cords (Pí-tsau-pi-wi, = cotton) on a hoop of wood, and to the center of this net-shield was attached the magic knife.

These children cut the face of the world with their magic knife, and were borne down upon their shield into the caverns in which all men dwelt. There, as the leaders of men, they lived with their children, mankind.

They listened to the supplications of the priests. They built a ladder to the roof of the first cave and widened with their flint knife and shield the aperture through which they had entered. Then they led men forth into the second cavern, which was larger and not quite so dark.

Ere long men multiplied and bemoaned their condition as before. Again they besought their priests, whose supplications were once more listened to by the divine children. As before, they led all mankind into the third world. Here it was still larger and like twilight, for the light of the Sun himself sifted down through the opening. To these poor creatures (children) of the dark the opening itself seemed a blazing sun.

But as time went on men multiplied even as they had before, and at last, as at first, bemoaned their condition. Again the two children listened to their supplications, and it was then that the children of men first saw the light of their father, the Sun.

The world had been covered with water. It was damp and unstable. Earthquakes disturbed its surface. Strange beings rose up through it, monsters and animals of prey. As upon an island in the middle of a great water, the children of men were led forth into the light of their father, the Sun. It blinded and heated them so that they cried to one

another in anguish, and fell down, and covered their eyes with their bare hands and arms, for men were black then, like the caves they came from, and naked, save for a covering at the loins of rush, like yucca fiber, and sandals of the same, and their eyes, like the owl's, were unused to the daylight.

Eastward the two children began to lead them, toward the Home of the Sun-father.

Now, it happened that the two children saw that the earth must be dried and hardened, for wherever the foot touched the soil water gathered—as may be seen even in the rocks to-day—and the monsters which rose forth from the deep devoured the children of men. Therefore they consulted together and sought the advice of their creator, the Sun-father. By his directions, they placed their magic shield upon the wet earth. They drew four lines a step apart upon the soft sands. Then the older brother said to the younger, "Wilt thou, or shall I, take the lead?"

"I will take the lead," said the younger.

"Stand thou upon the last line," said the older.

And when they had laid upon the magic shield the rainbow, and across it the arrows of lightning, toward all the quarters of the world, the younger brother took his station facing toward the right. The older brother took his station facing toward the left. When all was ready, both braced themselves to run. The older brother drew his arrow to the head, let fly, and struck the rainbow and the lightning arrows midway, where they crossed. Instantly, *thlu-tchu!* shot the arrows of lightning in every direction, and fire rolled over the face of the earth, and the two gods followed the courses of their arrows of lightning.

Now that the surface of the earth was hardened, even the animals of prey, powerful and like the fathers (gods) themselves, would have devoured the children of men; and the Two thought it was not well that they should all be permitted to live, "for," said they, "alike will the children of men and the children of the animals of prey multiply themselves. The animals of prey are provided with talons and teeth; men are but poor, the finished beings of earth, therefore the weaker."

Whenever they came across the pathway of one of these animals, were he great mountain lion or but a mere mole, they struck him with the fire of lightning which they carried in their magic shield. *Thlu!* and instantly he was shriveled and burnt into stone.

Then said they to the animals that they had thus changed to stone, "That ye may not be evil unto men, but that ye may be a great good unto them, have we changed you into rock everlasting. By the magic breath of prey, by the heart that shall endure forever within you, shall ye be made to serve instead of to devour mankind."

Thus was the surface of the earth hardened and scorched and many of all kinds of beings changed to stone. Thus, too, it happens that we find, here and there throughout the world, their forms, sometimes large

like the beings themselves, sometimes shriveled and distorted. And we often see among the rocks the forms of many beings that live no longer, which shows us that all was different in the "days of the new."

Of these petrifactions, which are of course mere concretions or strangely eroded rock-forms, the Zuñis say, "Whomsoever of us may be met with the light of such great good fortune may *see* (discover, find) them and should treasure them for the sake of the sacred (magic) power which was given them in the days of the new. For the spirits of the We-ma-á-hâ-i still live, and are pleased to receive from us the Sacred Plume (of the heart—Lä-sho-a-ni), and sacred necklace of treasure (Thlâ-thle-a); hence they turn their ears and the ears of their brothers in our direction that they may hearken to our prayers (sacred talks) and know our wants."

POWER OF THE FETICHES.

This tradition not only furnishes additional evidence relative to the preceding statements, but also, taken in connection with the following belief, shows quite clearly to the native wherein lies the power of his fetiches. It is supposed that the hearts of the great animals of prey are infused with a spirit or medicine of magic influence over the hearts of the animals they prey upon, or the game animals (K'ia-pin-á-hâ-i); that their breaths (the "Breath of Life"—Hâ-i-an-pi-nan-ne—and soul are synonymous in Zuñi Mythology), derived from their hearts, and breathed upon their prey, whether near or far, never fail to overcome them, piercing their hearts and causing their limbs to stiffen, and the animals themselves to lose their strength. Moreover, the roar or cry of a beast of prey is accounted its Sá-wa-ni-k'ia, or magic medicine of destruction, which, heard by the game animals, is fatal to them, because it charms their senses, as does the breath their hearts. Since the mountain lion, for example, lives by the blood ("life fluid") and flesh of the game animals, and by these alone, he is endowed not only with the above powers, but with peculiar powers in the senses of sight and smell. Moreover, these powers, as derived from his heart, are preserved in his fetich, since his heart still lives, even though his person be changed to stone.

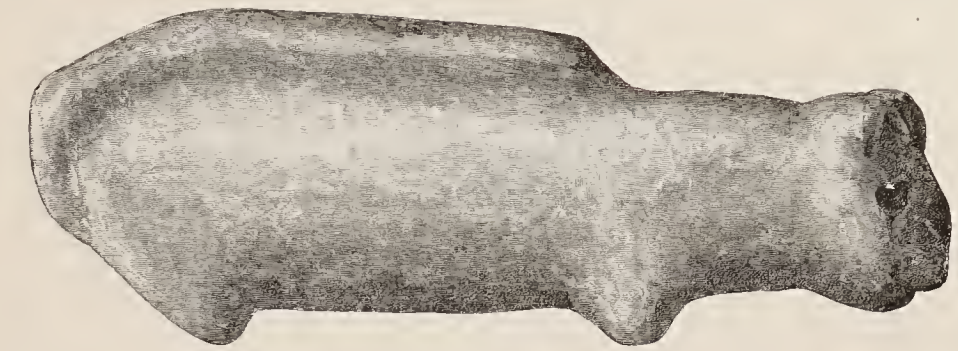
PREY GODS OF THE SIX REGIONS.

THEIR ORIGIN.

Therefore it happens that the use of these fetiches is chiefly connected with the chase. To this, however, there are some exceptions. One of these may be partly explained by the following myth concerning Pó-shai-aŋ-k'ia, the God (Father) of the Medicine societies or sacred esoteric orders, of which there are twelve in Zuñi, and others among the different pueblo tribes. He is supposed to have appeared in human form, poorly clad, and therefore reviled by men; to have taught the ancestors of the Zuñi, Taos, Oraibi, and Coçonino Indians their agricultural and other arts, their systems of worship by means of plumed and painted prayer-sticks; to have organized their medicine societies; and then to have disappeared toward his home in Shí-pä-pu-li-ma (from *shí-pi-a*= mist, vapor; *u-lin*=surrounding; and *i-mo-na*=sitting place of—"The mist-enveloped city"), and to have vanished beneath the world, whence he is said to have departed for the home of the Sun. He is still the conscious auditor of the prayers of his children, the invisible ruler of the spiritual Shí-pä-pu-li-ma, and of the lesser gods of the medicine orders, the principal "Finisher of the Paths of our Lives." He is, so far as any identity can be established, the "Montezuma" of popular and usually erroneous Mexican tradition.

PÓ-SHAI-AŊ-K'IA.

In ancient times, while yet all beings belonged to one family, Pó-shai-aŋ-k'ia, the father of our sacred bands, lived with his children (disciples) in the City of the Mists, the middle place (center) of the Medicine societies of the world. There he was guarded on all sides by his six warriors, Á-pi-thlan shí-wa-ni (*pí-thlan*=bow, *shí-wa-ni*=priests), the prey gods; toward the North by the Mountain Lion (Long Tail); toward the West by the Bear (Clumsy Foot); toward the South by the Badger (Black Mark Face); toward the East by the Wolf (Hang Tail); above by the Eagle (White Cap); and below by the Mole. When he was about to go forth into the world, he divided the universe into six regions, namely, the North (Pï'sh-lan-kwïn táh-na=Direction of the Swept or Barren place); the West (K'iä'-li-shi-ïn-kwïn táh-na=Direction of the Home of the Waters); the South (Á-la-ho-ïn-kwïn táh-na=Direction of the Place of the Beautiful Red); the East (Té-lu-a-ïn-kwïn táh-na=Direction of the Home of Day); the Upper Regions (Í-ya-ma-ïn-kwïn táh-na=Direction of the Home of the High); and the Lower Regions (Ma-ne-lam-ïn-kwïn táh-na=Direction of the Home of the Low)."



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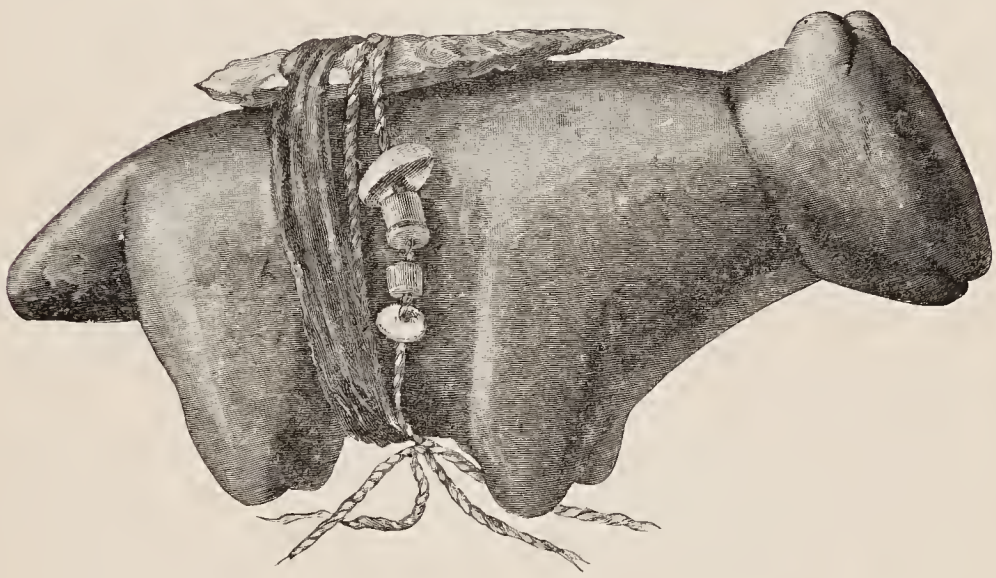

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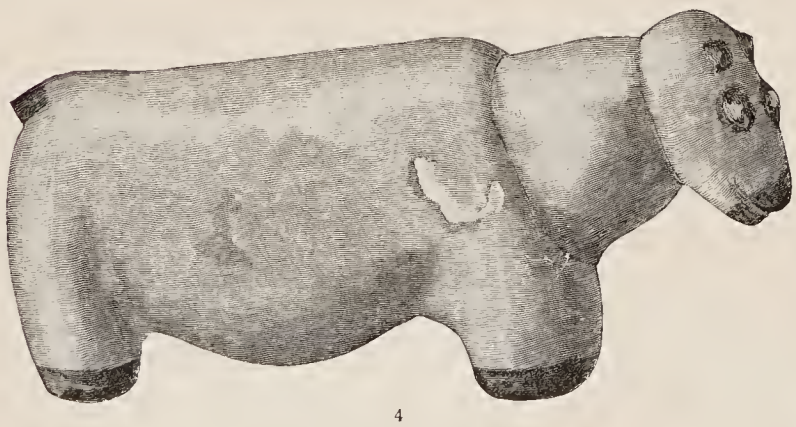

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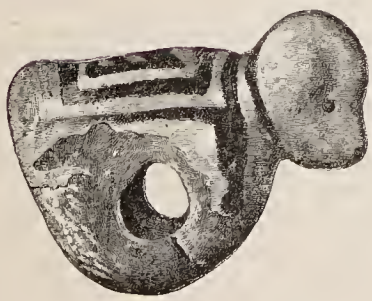

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PREY GOD FETICHES OF THE SIX REGIONS.

All, save the first of these terms, are archaic. The modern names for the West, South, East, Upper and Lower Regions signifying respectively—"The Place of Evening," "The Place of the Salt Lake" (Las Salinas), "The Place whence comes the Day," "The Above," and "The Below."

In the center of the great sea of each of these regions stood a very ancient sacred place (Té-thlä-shi-na-kwïn), a great mountain peak. In the North was the Mountain Yellow, in the West the Mountain Blue, in the South the Mountain Red, in the East the Mountain White, above the Mountain All-color, and below the Mountain Black.

We do not fail to see in this clear reference to the natural colors of the regions referred to—to the barren north and its auroral hues, the west with its blue Pacific, the rosy south, the white daylight of the east, the many hues of the clouded sky, and the black darkness of the "caves and holes of earth." Indeed, these colors are used in the pictographs and in all the mythic symbolism of the Zuñis, to indicate the directions or regions respectively referred to as connected with them.

Then said Pó-shai-aŋ-k'ia to the Mountain Lion (Plate II, Fig. 1), "Long Tail, thou art stout of heart and strong of will. Therefore give I unto thee and unto thy children forever the mastership of the gods of prey, and the guardianship of the great Northern World (for thy coat is of yellow), that thou guard from that quarter the coming of evil upon my children of men, that thou receive in that quarter their messages to me, that thou become the father in the North of the sacred medicine orders all, that thou become a Maker of the Paths (of men's lives)."

Thither went the Mountain Lion. Then said Pó-shai-aŋ-k'ia to the Bear (Plate II, Fig. 2), "Black Bear, thou art stout of heart and strong of will. Therefore make I thee the younger brother of the Mountain Lion, the guardian and master of the West, for thy coat is of the color of the land of night," etc.

To the Badger (Plate II, Fig. 3), "Thou art stout of heart but *not* strong of will. Therefore make I thee the younger brother of the Bear, the guardian and master of the South, for thy coat is ruddy and marked with black and white equally, the colors of the land of summer, which is red, and stands between the day and the night, and thy homes are on the sunny sides of the hills," etc.

To the White Wolf (Plate II, Fig. 4), "Thou art stout of heart and strong of will. Therefore make I thee the younger brother of the Badger, the guardian and master of the East, for thy coat is white and gray, the color of the day and dawn," etc.

And to the Eagle (Plate II, Fig. 5), he said: "White Cap (Bald Eagle), thou art passing stout of heart and strong of will. Therefore make I thee the younger brother of the Wolf, the guardian and master of the Upper regions, for thou fliest through the skies without tiring, and thy coat is speckled like the clouds," etc.

"Prey Mole (Plate II, Fig. 6), thou art stout of heart and strong of

will. Therefore make I thee the younger brother of the Eagle, the guardian and master of the Lower regions, for thou burrowest through the earth without tiring, and thy coat is of black, the color of the holes and caves of earth," etc.

THEIR POWER AS MEDIATORS.

Thus it may be seen that all these animals are supposed to possess not only the guardianship of the six regions, but also the mastership, not merely geographic, but of the medicine powers, etc., which are supposed to emanate from them; that they are the mediators between men and Pó-shai-aŋ-ki'a, and conversely, between the latter and men.

As further illustrative of this relationship it may not be amiss to add that, aside from representing the wishes of men to Pó-shai-aŋ-k'ia, by means of the spirits of the prayer plumes, which, it is supposed, the prey gods take into his presence, and which are, as it were, memoranda (like *quippus*) to him and other high gods of the prayers of men, they are also made to bear messages to men from him and his associated gods.

For instance, it is believed that any member of the medicine orders who neglects his religious duties as such is rendered liable to punishment (Hä'-ti-a-k'ia-na-k'ia=reprehension) by Pó-shai-aŋ-k'ia through some one of his warriors.

As illustrative of this, the story of an adventure of Mí-tsi, an Indian who "still lives, but limps," is told by the priests with great emphasis to any backsliding member.

MÍ-TSI.

Mí-tsi was long a faithful member of the Little Fire order (Ma-ke-tsá-na-kwe), but he grew careless, neglected his sacrifices, and resigned his rank as "Keeper of the Medicines," from mere laziness. In vain his fathers warned him. He only grew hot with anger. One day Mí-tsi went up on the mesas to cut corral posts. He sat down to eat his dinner. A great black bear walked out of the thicket near at hand and leisurely approached him. Mí-tsi dropped his dinner and climbed a neighboring little dead pine tree. The bear followed him and climbed it, too. Mí-tsi began to have sad thoughts of the words of his fathers.

"Alas," he cried, "pity me, my father from the West-land!" In vain he promised to be a good Ma-ke-tsá-na-kwe. Had not Pó-shai-aŋ-k'ia commanded?

So the black bear seized him by the foot and pulled until Mí-tsi screamed from pain; but, cling as he would to the tree, the bear pulled him to the ground. Then he lay down on Mí-tsi and pressed the wind out of him so that he forgot. The black bear started to go; but eyed

Mí-tsi. Mí-tsi kicked. Black bear came and pressed his wind out again. It hurt Mí-tsi, and he said to himself, "Oh dear me! what shall I do? The father thinks I am not punished enough." So he kept very still. Black bear started again, then stopped and looked at Mí-tsi, started and stopped again, growled and moved off, for Mí-tsi kept very still. Then the black bear went slowly away, looking at Mí-tsi all the while, until he passed a little knoll. Mí-tsi crawled away and hid under a log. Then, when he thought himself man enough, he started for Zuñi. He was long sick, for the black bear had eaten his foot. He "still lives and limps," but he is a good Ma-ke-tsá-na-kwe. Who shall say that Pó-shai-aŋ-k'ia did not command?

THEIR WORSHIP.

The prey gods, through their relationship to Pó-shai-aŋ-k'ia, as "Makers of the Paths of Life," are given high rank among the gods. With this belief, their fetiches are held "as in captivity" by the priests of the various medicine orders, and greatly venerated by them as mediators between themselves and the animals they represent. In this character they are exhorted with elaborate prayers, rituals, and ceremonials. Grand sacrifices of plumed and painted prayer-sticks (Téthl-na-we) are made annually by the "Prey Brother Priesthood" (Wé-ma á-pa-pa á-shi-wa-ni) of these medicine societies, and at the full moon of each month lesser sacrifices of the same kind by the male members of the "Prey gentes" (Wé-ma á-no-ti-we) of the tribe.

PREY GODS OF THE HUNT.

THEIR RELATION TO THE OTHERS.

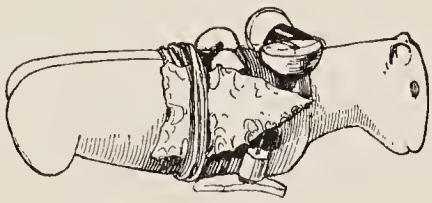
The fetich worship of the Zuñis naturally reaches its highest and most interesting development in its relationship to the chase, for the We-ma-á-hâ-i are considered *par excellence* the gods of the hunt. Of this class of fetiches, the special priests are the members of the "Great Coyote People" (Sá-ni-a-k'ia-kwe, or the Hunting Order), their keepers, the chosen members of the Eagle and Coyote gentes and of the Prey Brother priesthood.

The fetiches in question (Plate III) represent, with two exceptions, the same species of prey animals as those supposed to guard the six regions. These exceptions are, the Coyote (Sús-ki, Plate III, Fig. 2), which replaces the Black Bear of the West, and the Wild Cat (Té-pi, Plate III, Fig. 3), which takes the place of the Badger of the South.

In the prayer-songs of the Sá-ni-a-kía-kwe, the names of all of these prey gods are, with two exceptions, given in the language of the Rio Grande Indians. This is probably one of the many devices for securing greater secrecy, and rendering the ceremonials of the Hunter Society mysterious to other than members. The exceptions are, the Coyote, or Hunter god of the West, known by the archaic name of Thlä'-k'iä-tchu, instead of by its ordinary name of Sús-ki, and the Prey Mole or god of the Lower regions (Plate III, Fig. 5), which is named Maí-tu-pu, also archaic, instead of K'iä'-lu-tsi. Yet in most of the prayer and ritualistic recitals of this order all of these gods are spoken of by the names which distinguish them in the other orders of the tribe.

THEIR ORIGIN.

While all the prey gods of the hunt are supposed to have functions differing both from those of the six regions and those of the Priesthood of the Bow, spoken of further on, they are yet referred, like those of the first class, to special divisions of the world. In explanation of this, however, quite another myth is given. This myth, like the first, is derived from the epic before referred to, and occurs in the latter third of the long recital, where it pictures the tribes of the Zuñis, under the guidance of the Two Children, and the Kâ'-kâ at Kó-thlu-ël-lon-ne, now a marsh-bordered lagune situated on the eastern shore of the Colorado Chiquito, about fifteen miles north and west from the pueblo of



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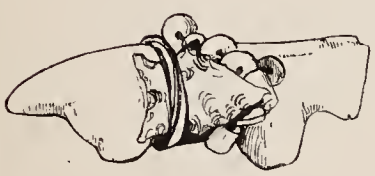

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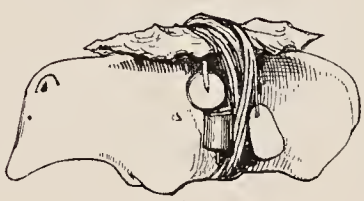

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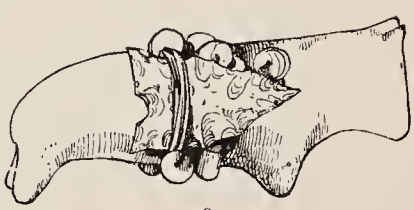

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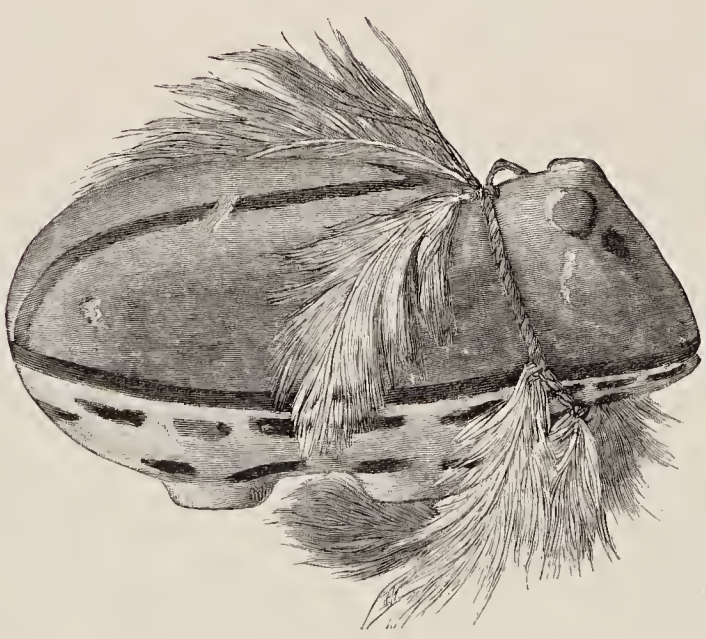

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PREY GOD FETICHES OF THE HUNT.

San Juan, Arizona, and nearly opposite the mouth of the Rio Concho. This lagune is probably formed in the basin or crater of some extinct geyser or volcanic spring, as the two high and wonderfully similar mountains on either side are identical in formation with those in which occur the cave-craters farther south on the same river. It has, however, been largely filled in by the *débris* brought down by the Zuñi River, which here joins the Colorado Chiquito. Kó-thlu-ël-lon signifies the "standing place (city) of the Kâ'-kâ" (from *Kâ*=a contraction of Kâ'-kâ, the sacred dance, and *thlu-ël-lon*=standing place).

THE DISTRIBUTION OF THE ANIMALS.

Men began their journey from the Red River, and the Kâ'-kâ still lived, as it does now, at Kó-thlu-ël-lon-ne, when the wonderful Snail People (not snails, as may be inferred, but a tribe of that name), who lived in the "Place of the Snails" (K'iá-ma-k'ia-kwïn), far south of where Zuñi now is, caused, by means of their magic power, all the game animals in the whole world round about to gather together in the great forked cañon-valley under their town, and there to be hidden.

The walls of this cañon were high and insurmountable, and the whole valley although large was filled full of the game animals, so that their feet rumbled and rattled together like the sound of distant thunder, and their horns crackled like the sound of a storm in a dry forest. All round about the cañon these passing wonderful Snail People made a road (line) of magic medicine and sacred meal, which road, even as a corral, no game animal, even though great Elk or strong Buck Deer, could pass.

Now, it rained many days, and thus the tracks of all these animals tending thither were washed away. Nowhere could the Kâ'-kâ or the children of men, although they hunted day after day over the plains and mountains, on the mesas and along the cañon-valleys, find prey or trace of prey.

Thus it happened that after many days they grew hungry, almost famished. Even the great strong Shá'-la-k'o and the swift Sá-la-mo-pi-a walked zigzag in their trails, from the weakness of hunger. At first the mighty Kâ'-kâ and men alike were compelled to eat the bones they had before cast away, and at last to devour the soles of their moccasins and even the deer-tail ornaments of their dresses for want of the flesh of K'iap-in-á-hâ-i, Game animals.

Still, day after day, though weak and disheartened, men and the Kâ'-kâ sought game in the mountains. At last a great Elk was given liberty. His sides shook with tallow, his dewlap hung like a bag, so fleshy was it, his horns spread out like branches of a dead tree, and his crackling hoofs cut the sands and even the rocks as he ran westward. He circled far off toward the Red River, passed through the Round Valley, and into the northern cañons. The Shá'-la-k'o was out hunting.

He espied the deep tracks of the elk and fleetly followed him. Passing swift and strong was he, though weak from hunger, and ere long he came in sight of the great Elk. The sight gladdened and strengthened him; but alas! the Elk kept his distance as he turned again toward the hiding-place of his brother animals. On and on the Sha'-la-k'o followed him, until he came to the edge of a great cañon, and peering over the brink discovered the hiding-place of all the game animals of the world.

"Aha! so here you all are," said he. "I'll hasten back to my father, Pá-u-ti-wa,* who hungers for flesh, alas! and grows weak." And like the wind the Shá'-la-k'o returned to Kó-thlu-ël-lon-ne. Entering, he informed the Kâ'-kâ, and word was sent out by the swift Sá-la-mo-pi-a† to all the We-ma-á-hâ-i for counsel and assistance, for the We-ma-á-hâ-i were now the Fathers of men and the Kâ'-kâ. The Mountain Lion, the Coyote, the Wild Cat, the Wolf, the Eagle, the Falcon, the Ground Owl, and the Mole were summoned, all hungry and lean, as were the Kâ'-kâ and the children of men, from want of the flesh of the game animals. Nevertheless, they were anxious for the hunt and moved themselves quickly among one another in their anxiety. Then the passing swift runners, the Sá-la-mo-pi-a, of all colors, the yellow, the blue, the red, the white, the many colored, and the black, were summoned to accompany the We-ma-á-hâ-i to the cañon-valley of the Snail People. Well they knew that passing wonderful were the Snail People, and that no easy matter would it be to overcome their medicine and their magic. But they hastened forth until they came near to the cañon. Then the Shá'-la-k'o,‡ who guided them, gave directions that they should make themselves ready for the hunt.

When all were prepared, he opened by his sacred power the magic corral on the northern side, and forth rushed a great buck Deer.

"Long Tail, the corral has been opened for thee. Forth comes thy game, seize him!" With great leaps the Mountain Lion overtook and threw the Deer to the ground, and fastened his teeth in his throat.

The corral was opened on the western side. Forth rushed a Mountain Sheep.

"Coyote, the corral has been opened for thee. Forth comes thy game, seize him!" The Coyote dashed swiftly forward. The Mountain Sheep dodged him and ran off toward the west. The Coyote crazily ran about

*The chief god of the Kâ'-kâ, now represented by masks, and the richest costuming known to the Zuñis, which are worn during the winter ceremonials of the tribe.

†The Sá-la-mo-pi-a are monsters with round heads, long snouts, huge feathered necks, and human bodies. They are supposed to live beneath the waters, to come forth or enter snout foremost. They also play an important part in the Kâ'-kâ or sacred dances of winter.

‡Monster human bird forms, the warrior chiefs of Pá-u-ti-wa, the representatives of which visit Zuñi, from their supposed western homes in certain springs, each New Year. They are more than twelve feet high, and are carried swiftly about by persons concealed under their dresses.

yelping and barking after his game, but the Mountain Sheep bounded from rock to rock and was soon far away. Still the Coyote rushed crazily about, until the Mountain Lion commanded him to be quiet. But the Coyote smelled the blood of the Deer and was beside himself with hunger. Then the Mountain Lion said to him disdainfully, "Satisfy thy hunger on the blood that I have spilled, for to-day thou hast missed thy game; and thus ever will thy descendants like thee blunder in the chase. As thou this day satisfiest thy hunger, so also by the blood that the hunter spills or the flesh that he throws away shall thy descendants forever have being."

The corral was opened on the southern side. An Antelope sprang forth. With bounds less strong than those of the Mountain Lion, but nimbler, the Wild Cat seized him and threw him to the ground.

The corral was opened on the eastern side. Forth ran the Ó-ho-li (or albino antelope). The Wolf seized and threw him. The Jack Rabbit was let out. The Eagle poised himself for a moment, then swooped upon him. The Cotton Tail came forth. The Prey Mole waited in his hole and seized him; the Wood Rat, and the Falcon made him his prey; the Mouse, and the Ground Owl quickly caught him.

While the We-ma-á-hâ-i were thus satisfying their hunger, the game animals began to escape through the breaks in the corral. Forth through the northern door rushed the Buffalo, the great Elk, and the Deer, and toward the north the Mountain Lion, and the yellow Sá-la-mo-pi-a swiftly followed and herded them, to the world where stands the yellow mountain, below the great northern ocean.

Out through the western gap rushed the Mountain Sheep, herded and driven by the Coyote and the blue Sá-la-mo-pi-a, toward the great western ocean, where stands the ancient blue mountain.

Out through the southern gap rushed the Antelope, herded and driven by the Wild Cat and the red Sá-la-mo-pi-a, toward the great land of summer, where stands the ancient red mountain.

Out through the eastern gap rushed the Ó-ho-li, herded and driven by the Wolf and the white Sá-la-mo-pi-a, toward where "they say" is the eastern ocean, the "Ocean of day", wherein stands the ancient white mountain.

Forth rushed in all directions the Jack Rabbit, the Cotton Tail, the Rats, and the Mice, and the Eagle, the Falcon, and the Ground Owl circled high above, toward the great "Sky ocean," above which stands the ancient mountain of many colors, and they drove them over all the earth, that from their homes in the air they could watch them in all places; and the Sá-la-mo-pi-a of many colors rose and assisted them.

Into the earth burrowed the Rabbits, the Rats, and the Mice, from the sight of the Eagle, the Falcon, and the Ground Owl, but the Prey Mole and the black Sá-la-mo-pi-a thither followed them toward the four caverns (wombs) of earth, beneath which stands the ancient black mountain.

Then the earth and winds were filled with rumbling from the feet of the departing animals, and the Snail People saw that their game was escaping; hence the world was filled with the wars of the Kâ′-kâ, the Snail People, and the children of men.

Thus were let loose the game animals of the world. Hence the Buffalo, the Great Elk, and the largest Deer are found mostly in the north, where they are ever pursued by the great Mountain Lion; but with them escaped other animals, and so not alone in the north are the Buffalo, the Great Elk, and the Deer found.

Among the mountains and the cañons of the west are found the Mountain Sheep, pursued by the Coyote; but with them escaped many other animals; hence not alone in the west are the Mountain Sheep found.

Toward the south escaped the Antelopes, pursued by the Wild Cat. Yet with them escaped many other animals; hence not alone in the south are the Antelopes found.

Toward the east escaped the Ó-ho-li, pursued by the Wolf; but with them escaped many other animals; hence not alone in the east are the Ó-ho-li-we found.

Forth in all directions escaped the Jack Rabbits, Cotton Tails, Rats, and Mice; hence over all the earth are they found. Above them in the skies circle the Eagle, the Falcon, and the Ground Owl; yet into the earth escaped many of them, followed by the Prey Mole; hence beneath the earth burrow many.

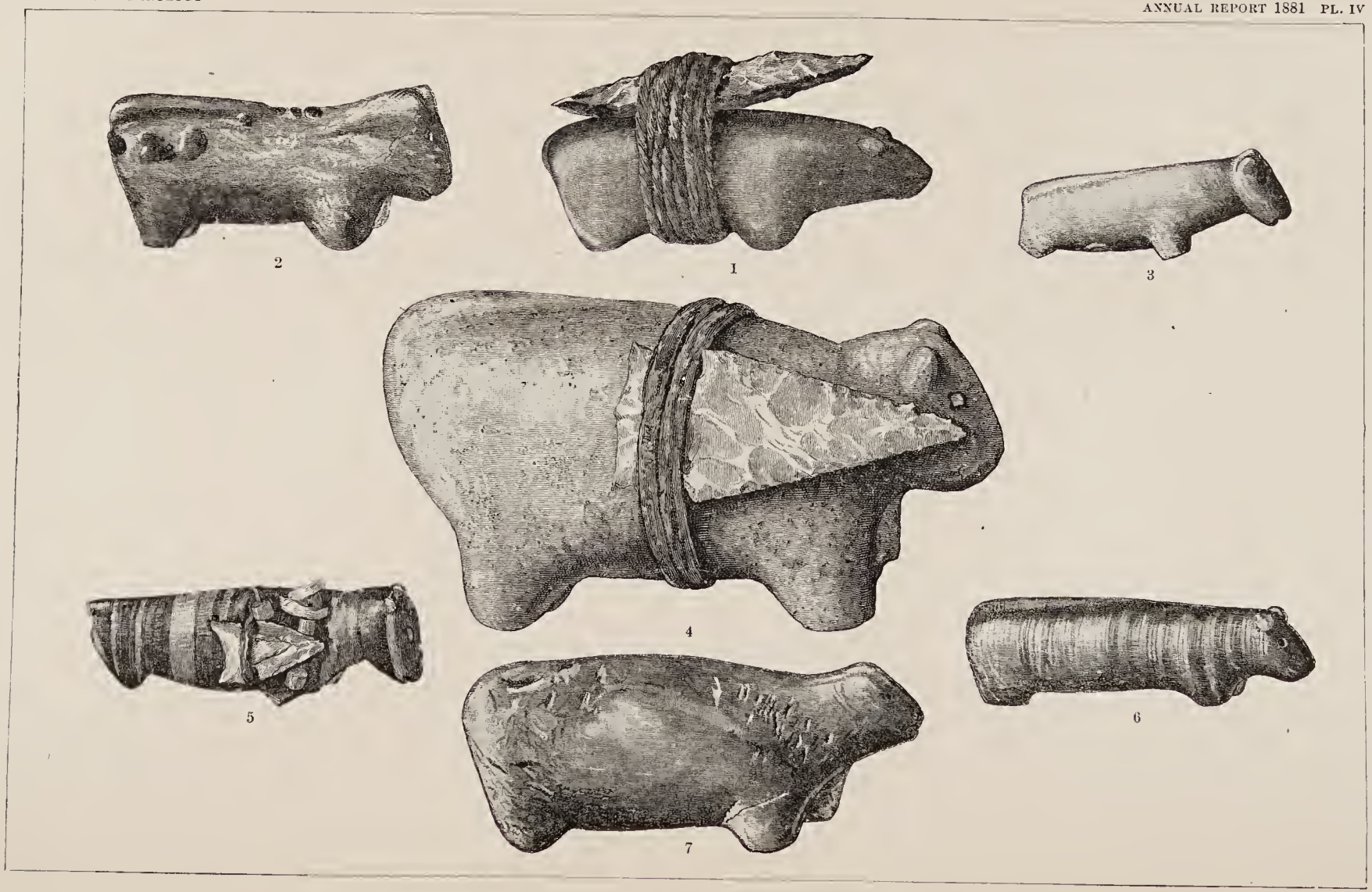
Thus, also, it came to be that the Yellow Mountain Lion is the master Prey Being of the north, but his younger brothers, the blue, the red, the white, the spotted, and the black Mountain Lions wander over the other regions of earth. Does not the spotted Mountain Lion (evidently the Ocelot) live among the *high* mountains of the south?

Thus, too, was it with the Coyote, who is the master of the West, but whose younger brothers wander over all the regions; and thus, too, with the Wild Cat and the Wolf.

In this tradition there is an attempt, not only to explain the special distribution throughout the six regions, of the Prey animals and their prey, but also to account for the occurrence of animals in regions other than those to which, according to this classification, they properly belong.

THEIR VARIETIES.

We find, therefore, that each one of the six species of Prey animals is again divided into six varieties, according to color, which determines the location of each variety in that one or other of the regions with which its color agrees, yet it is supposed to owe allegiance to its



THE MOUNTAIN LION FETICHES OF THE CHASE—HUNTER GOD OF THE NORTH.

representative, whatsoever this may be or wheresoever placed. For instance, the Mountain Lion is primarily god of the North, but he is supposed to have a representative (younger brother) in the West (the blue Mountain Lion), another in the South (the Red), in the East (the White), in the Upper regions (the Spotted), and in the Lower regions (the black Mountain Lion).

Hence, also, there are six varieties of the fetich representing any one of these divisions, the variety being determined by the color, as expressed either by the material of which the fetich is formed, or the pigment with which it is painted, or otherwise, as, for example, by inlaying. (Plate III, Fig. 4, and Plate VII, Fig. 2.)

THE MOUNTAIN LION—HUNTER GOD OF THE NORTH.

According to this classification, which is native, the fetiches of the Mountain Lions are represented on Plate IV. They are invariably distinguished by the tail, which is represented very long, and laid lengthwise of the back from the rump nearly or quite to the shoulders, as well as by the ears, which are quite as uniformly rounded and not prominent.

The fetich of the yellow Mountain Lion (Hâ′k-ti tä′sh-a-na thlúp-tsi-na), or God of the North (Plate IV, Fig. 1), is of yellow limestone.* It has been smoothly carved, and is evidently of great antiquity, as shown by its polish and patina, the latter partly of blood. The anus and eyes are quite marked holes made by drilling. An arrow-point of flint is bound to the back with cordage of cotton, which latter, however, from its newness, seems to have been recently added.

The fetich of the blue Mountain Lion, of the West (Hâ′k-ti tä′sh-a-na thlí-a-na), is represented in Plate IV, Fig. 2. The original is composed of finely veined azurite or carbonate of copper, which, although specked with harder serpentinous nodules, is almost entirely blue. It has been carefully finished, and the ears, eyes, nostrils, mouth, tail, anus, and legs are clearly cut.

The fetich of the white Mountain Lion, of the East (Hâ′k-ti tä′sh-a na k'ó-ha-na), is represented by several specimens, two of which are reproduced in Plate IV, Figs. 3 and 4. The former is very small and composed of compact white limestone, the details being pronounced, and the whole specimen finished with more than usual elaboration. The latter is unusually large, of compact gypsum or alabaster, and quite carefully carved. The eyes have been inlaid with turkoises, and there is cut around its neck a groove by which the beads of shell, coral, &c., were originally fastened. A large arrow-head of chalcedony has been bound with cords of cotton flatwise along one side of the body.

The only fetich representing the red Mountain Lion, of the South (Hâ′k-ti tä′sh-a-na á-ho-na), in the collection was too imperfect for reproduction.

*I am indebted to Mr. S. F. Emmons, of the Geological Survey, for assisting me to determine approximately the mineralogical character of these specimens.

The fetich of the spotted or many-colored Mountain Lion (Hâ'k-ti tä'sh-a-na sú-pa-no-pa *or* í-to-pa-nah-na-na), of the Upper regions, is also represented by two specimens (Plate IV, Figs. 5 and 6), both of fibrous aragonite in alternating thin and thick laminæ, or bands of grayish yellow, white, and blue. Fig. 5 is by far the more elaborate of the two, and is, indeed, the most perfect fetich in the collection. The legs, ears, eyes, nostrils, mouth, tail, anus, and genital organs (of the male) are carefully carved, the eyes being further elaborated by mosaics of minute turkoises. To the right side of the body, "over the heart," is bound with blood-blackened cotton cords a delicate flint arrow-point, together with white shell and coral beads, and, at the breast, a small triangular figure of an arrow in haliotus, or abalone.

The fetich of the black Mountain Lion (Hâ'k-ti tä'sh-a-na shí-k'ia-na) (Pl. IV, Fig. 7) is of gypsum, or white limestone, but has been painted black by pigment, traces of which are still lodged on portions of its surface.

THE COYOTE-HUNTER GOD OF THE WEST.

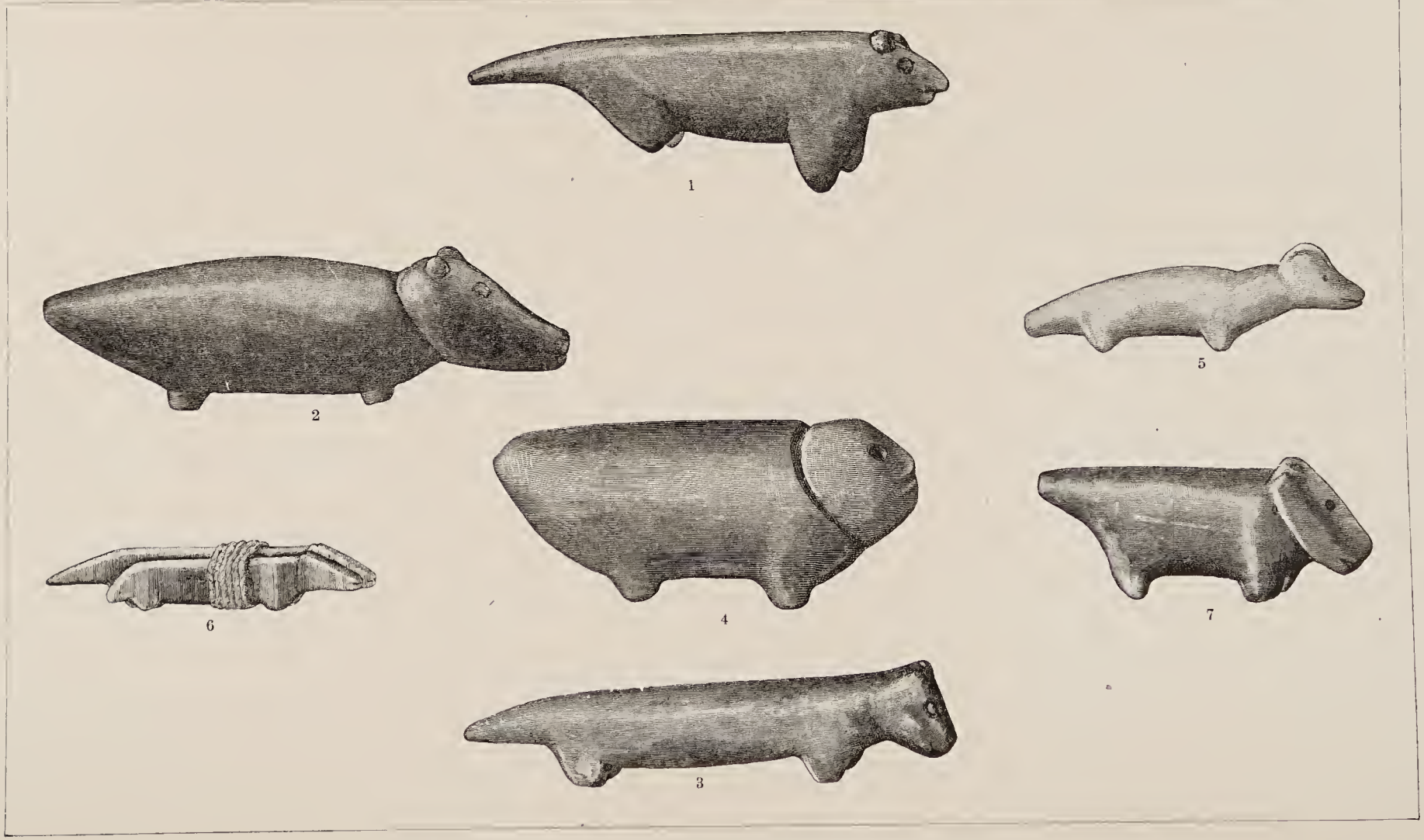
The fetiches of the Coyote, or God of the West, and his younger brothers, represented on Plate V, are called Téthl-po-k'ia, an archaic form of the modern word Sús-k'i wé-ma-we (Coyote fetiches), from *téthl-nan*, = a sacred prayer-plume, and *pó-an*, = an object or locality on or toward which anything is placed, a depository, and *k'ia* = the active participle. They are usually distinguished by horizontal or slightly drooping tails, pointed or small snouts, and erect ears. Although the Coyote of the West is regarded as the master of the Coyotes of the other five regions, yet, in the prayers, songs, and recitations of the Sá-ni-a-k'ia-kwe, and Prey Brother Priesthood, the Coyote of the North is mentioned first. I therefore preserve the same sequence observed in describing the Mountain Lion fetiches.

The fetich of the yellow Coyote (Sús-k'i thlúp-tsi-na), of the North, is represented in Plate V, Fig. 1. The original is of compact white limestone stained yellow. The attitude is that of a coyote about to pursue his prey (lá-hi-na í-mo-na), which has reference to the intemperate haste on the part of this animal, which usually, as in the foregoing tradition, results in failure.

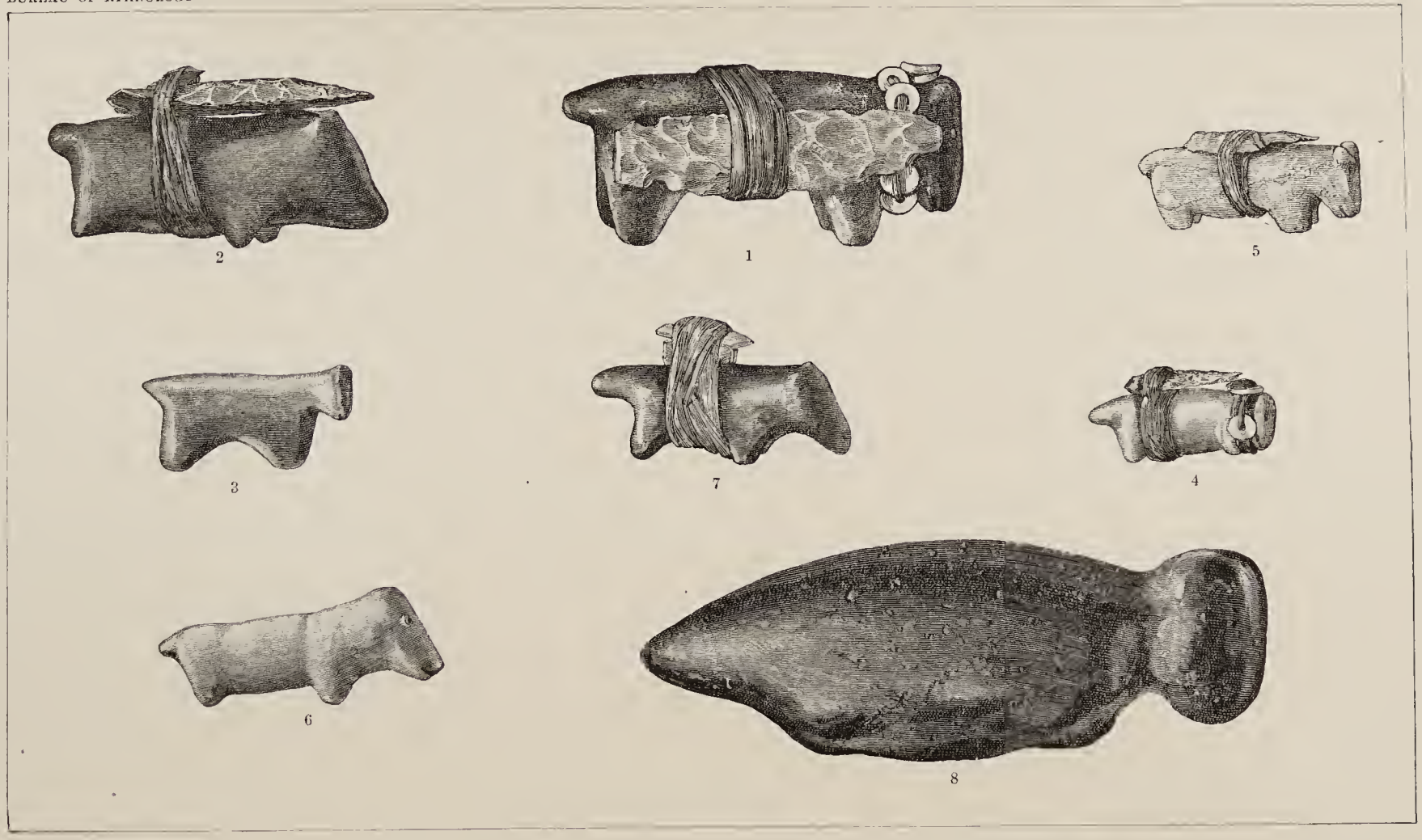
The fetich of the blue Coyote, of the West (Sús-k'i ló-k'ia-na—signifying in reality blue gray, the color of the coyote, instead of blue=thlí-a-na), is shown in Plate V, Fig. 2. This fetich is also of compact white limestone, of a yellowish gray color, although traces of blue paint and large turkois eyes indicate that it was intended, like Plate III, Fig. 3, to represent the God of the West.

The fetich of the red Coyote (Sús-k'i á-ho-na), of the South, is represented by Plate V, Fig. 4, which, although of white semi-translucent calcite, has been deeply stained with red paint.

Two examples of the fetich of the white Coyote (Sús-k'i k'ó-ha-na), of the East, are shown in Plate V, Figs. 4 and 5. They are both of com-



THE COYOTE FETICHES OF THE CHASE—HUNTER GOD OF THE WEST.



WILD CAT FETICHES OF THE CHASE—HUNTER GOD OF THE SOUTH.

pact white limestone. The first is evidently a natural fragment, the feet being but slightly indicated by grinding, the mouth by a deep cut straight across the snout, and the eyes by deeply drilled depressions, the deep groove around the neck being designed merely to receive the necklace. The second, however, is more elaborate, the pointed chin, horizontal tail, and pricked-up ears being distinctly carved, and yet in form the specimen resembles more a weasel than a coyote.

The fetich of the many-colored Coyote (Sús-k'i í-to-pa-nah-na-na), of the Upper regions, is reproduced in Plate V, Fig. 6, which represents the male and female together, the latter being indicated merely by the smaller size and the shorter tail. They are both of aragonite. This conjoined form of the male and female fetiches is rare, and is significant of other powers than those of the hunt.

The black Coyote (Sús-k'i shí-k'ia-na), of the Lower regions, is represented by Plate V, Fig. 7, the original of which is of compact white limestone or yellowish-gray marble, and shows traces of black paint or staining.

THE WILD-CAT—HUNTER GOD OF THE SOUTH.

The fetiches of the Wild Cat, the principal of which is God of the South, are represented on Plate VI. They are characterized by short horizontal tails and in most cases by vertical faces and short ears, less erect than in the fetiches of the Coyote.

Plate VI, Fig. 1, represents the fetich of the yellow Wild Cat (Té-pi thlúp-tsi-na) of the North. Although of yellow limestone, it is stained nearly black with blood. A long, clearly-chipped arrow-point of chalcedony is bound with blood-stained cotton cordage along the right side of the figure, and a necklace of white shell beads (Kó-ha-kwa), with one of black stone (Kewí-na-kwa) among them, encircles the neck.

Plate VI, Fig. 2, represents the fetich of the blue Wild Cat (Té-pi thlí-a-na), of the West. It is formed from basaltic clay of a grayish-blue color, and is furnished with an arrow-point of jasper (jasp vernis), upon which is laid a small fragment of turkois, both secured to the back of the specimen with sinew taken from the animal represented. Plate VI, Fig. 3, likewise represents the fetich of the Wild Cat of the West. It is a fragment from a thin vein of malachite and azurite, or green and blue carbonate of copper, and has been but little changed from its original condition.

Plate VI, Fig. 4, represents the red Wild Cat (Té-pi á-ho-na), of the South. Although formed from gypsum or yellow limestone, its color has been changed by the application of paint. It is supplied with the usual necklace and arrow-point of the perfect fetich, secured by bands of sinew and cotton.

Both Figs. 5 and 6 of Plate VI represent the fetich of the white Wild Cat (Té-pi k'ó-ha-na), of the East, and are of compact white limestone carefully fashioned and polished, the one to represent the perfect animal,

the other the fœtus. This specimen, like Plate V, Fig. 6, has a significance other than that of a mere fetich of the chase, a significance connected with the Phallic worship of the Zuñis, on which subject I hope ere many years to produce interesting evidence.

Plate VI, Fig. 7, represents the fetich of the many-colored Wild Cat (Té-pi sú-pa-no-pa), of the Upper regions, which is made of basaltic clay, stained black with pitch and pigment, and furnished with a flake of flint and a small fragment of chrysocolla, both of which are attached to the back of the figure with a binding of sinew.

Plate VI, Fig. 8, represents, according to the Zuñis, a very ancient and valued fetich of the black Wild Cat (Té-pi shí-k'ia-na), of the Lower regions. It is little more than a concretion of compact basaltic rock, with slight traces of art. Its natural form, however, is suggestive of an animal. Long use has polished its originally black surface to the hue of lustrous jet.

THE WOLF—HUNTER GOD OF THE EAST.

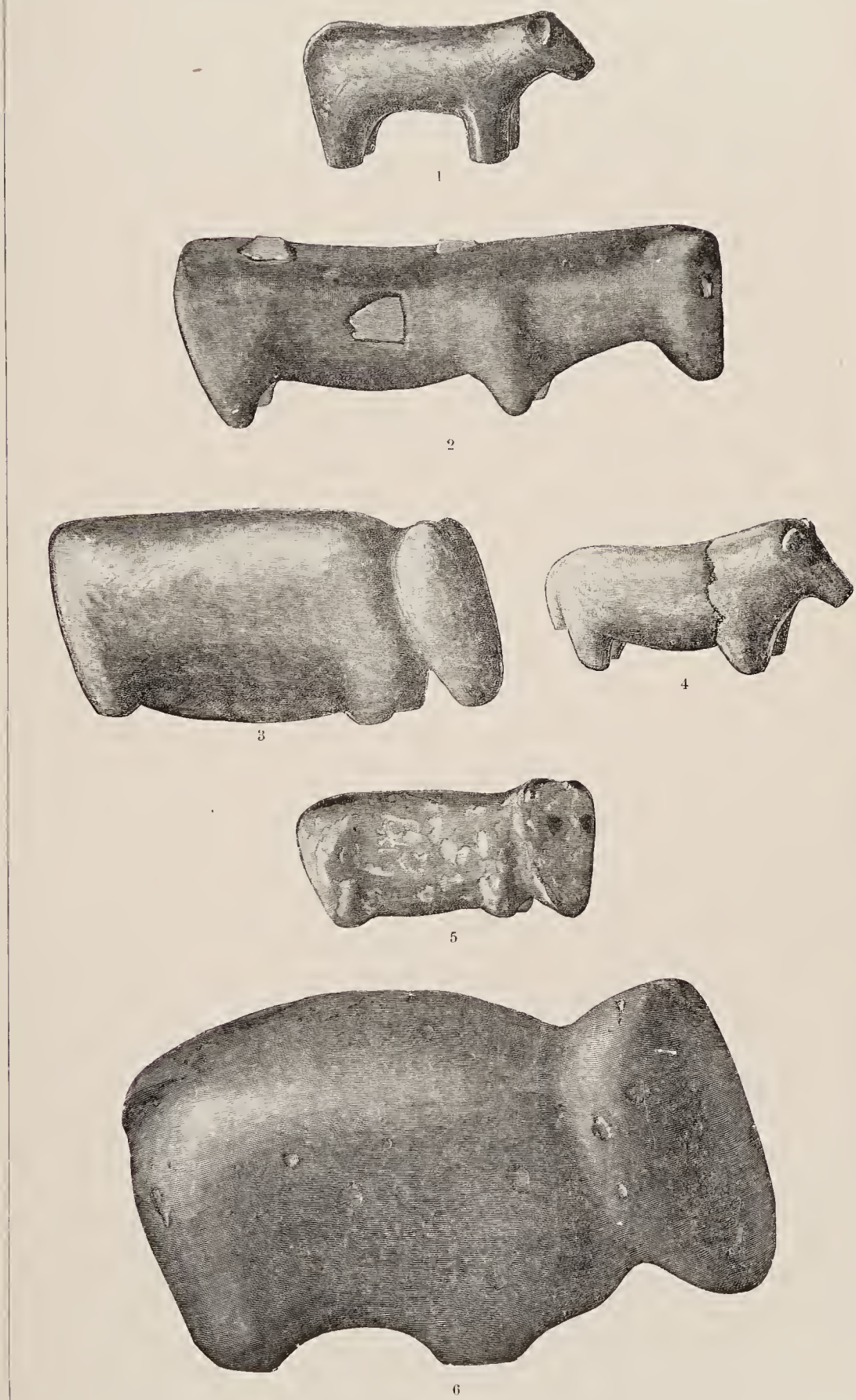
The fetiches of the Wolf, God of the East, and of his younger brothers (Iú-na-wi-ko wé-ma-we) are represented on Plate VII. They are characterized by erect attitudes, usually oblique faces, pricked-up ears, and "hanging tails."

Plate VII, Fig. 1, is a representation of the fetich of the yellow Wolf (Iú-na-wi-ko thlúp-tsi-na), of the North. It is of yellow indurated claystone. In this example the legs are much longer than in most specimens, for nearly all these figures are either natural fragments or concretions slightly improved on by art, or are figures which have been suggested by and derived from such fragments or concretions. Moreover, the ceremonials to be described further on require that they should be "able to stand alone"; therefore they are usually furnished with only rudimentary legs. The tail is only indicated, while in nearly all other Wolf fetiches it is clearly cut down the rump, nearly to the gambol joint.

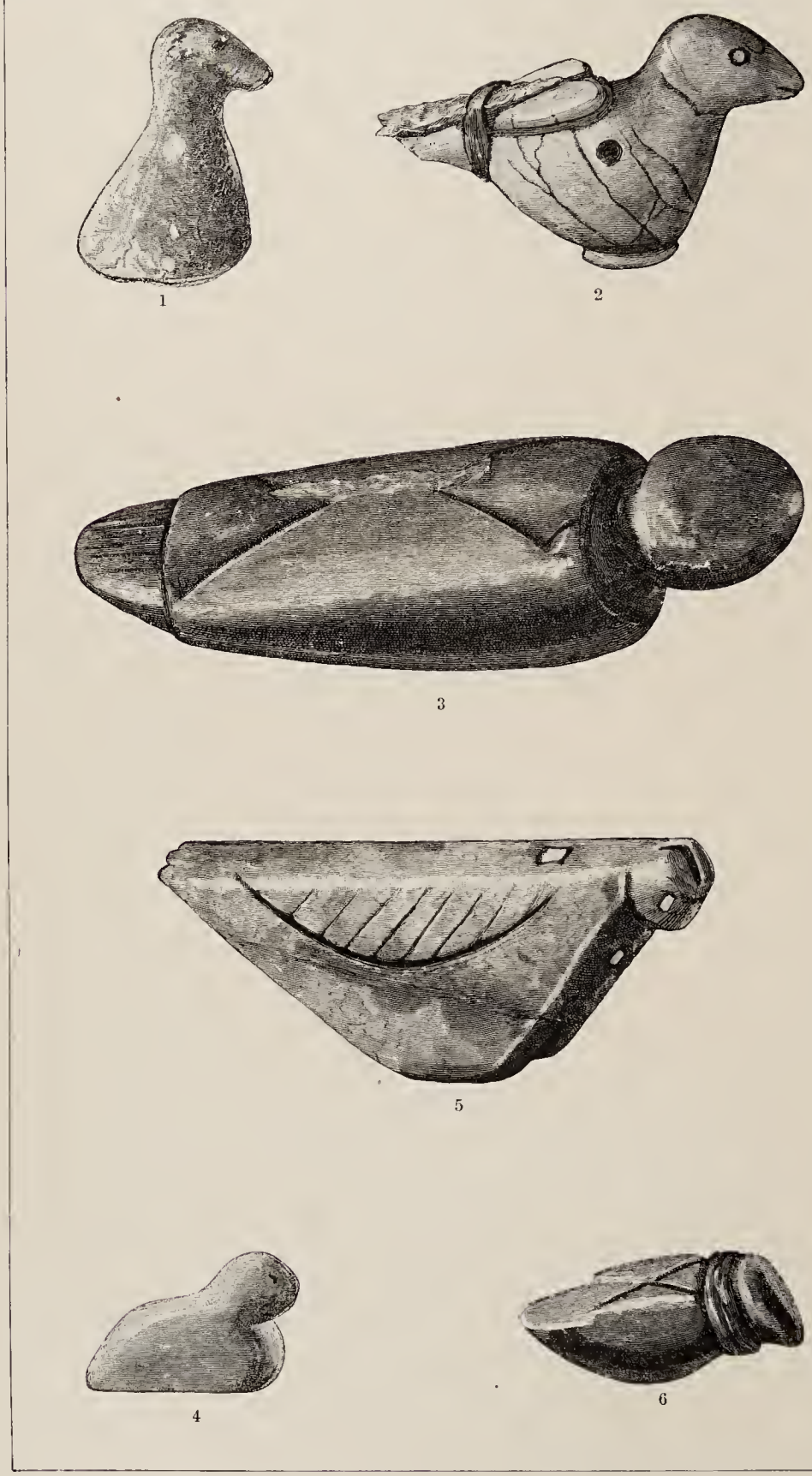
Plate VII, Fig. 2, represents a fetich of the blue Wolf (Iú-na-wi-ko thlí-a-na), of the West. It is of gray sandstone, stained first red, then blue, the latter color being further indicated by settings of green turkois on either side and along the back, as well as in the eyes.

Plate VII, Fig. 3, represents the fetich of the red Wolf (Iú-na-wi-ko á-ho-na), of the South. It is but crudely formed from a fragment of siliceous limestone, the feet, ears, and tail being represented only by mere protuberances. Although the material is naturally of a yellowish-gray color, it has been stained red.

Plate VII, Fig. 4, represents the fetich of the white Wolf (Iú-na-wi-ko k'ó-ha-na), of the East. It is of very white, compact limestone. The hanging tail, erect ears, attitude, &c., are better shown in this than perhaps in any other specimen of the class in the collection. It has, however, been broken through the body and mended with black pitch.



WOLF FETICHES OF THE CHASE—HUNTER GOD OF THE EAST.



EAGLE FETICHES OF THE CHASE—HUNTER GOD OF THE UPPER REGIONS.

Plate VII, Fig. 5, represents the fetich of the many-colored Wolf (Iú-na-wi-ko í-to-pa-nah-na-na), of the Upper regions. The original is of fine-grained sandstone of a gray color, stained in some places faintly with red and other tints. The mouth, eyes, ear tips, and tail have been touched with black to make them appear more prominent.

Plate VII, Fig. 6, represents the fetich of the black Wolf (Iú-na-wi-ko shí-k'ia-na), of the Lower regions. Although uncommonly large and greatly resembling in form the bear, it possesses the oblique face, upright ears, hanging tail, and other accepted characteristics of the Wolf.

THE EAGLE—HUNTER GOD OF THE UPPER REGIONS.

The fetiches of the Eagle, God of the Upper regions, and his younger brothers of the other regions (K'iä'-k'iä-li wé-ma-we) are represented on Plate VIII. They are characterized merely by rude bird forms, with wings either naturally or very conventionally carved (Figs. 3 and 6). Further details are rarely attempted, from the fact that all the other principal prey animals are quadrupeds, and the simple suggestion of the bird form is sufficient to identify the eagle among any of them.

Plate VIII, Fig. 1, represents the fetich of the yellow Eagle (K'iä'-k'iä-li thlúp-tsi-na), of the Northern skies. It consists merely of the head and shoulders, very rudely formed of white limestone and painted with yellow ocher. This specimen is doubtless a natural fragment very little altered by art.

Plate VIII, Fig. 2, represents the fetich of the blue Eagle (K'iä'-k'iä-li ló-k'ia-na), of the Western skies. It is quite elaboratcly carved, supplied with a pedestal, and pierced through the body to facilitate suspension. For during ceremonials, to be described further on, the fetiches of the Eagle are usually suspended, although sometimes, like those of the quadrupeds, they are placed on the floor, as indicated by the pedestal furnished to this specimen. Although of compact white limestone, this fetich is made to represent the blue Eagle by means of turkois eyes and a green stain over the body. A small pink chalcedony arrow-point is attached to the back between the wings by means of a single sinew band passed around the tips of the latter and the tail and under the wings over the shoulders.

Plate VIII, Fig. 3, represents the fetich of the red Eagle (K'iä'-k'iä-li á-ho-na), of the Southern skies. Like Fig. 42, this is doubtless a nearly natural fragment of very fine-grained red sandstone, the wings being indicated by deep lines which cross over the back, and the rump grooved to receive the cord with which to secure to the back an arrow-point. The breast is perforated.

Plate VIII, Fig. 4, is a nearly natural fragment of compact white limestone, representing the white Eagle (K'iä'-k'iä-li k'ó-ha-na), of the Eastern skies. No artificial details, save the eyes, which are faintly indicated, have been attempted on this specimen.

Plate VIII, Fig. 5, represents, in compact yellow limestone, the speckled

Eagle (K'iä'-k'iä-li sú-tchu-tchon-ne) of the Upper regions, the drab color of the body being varied by fragments of pure turkois inserted into the eyes, breast, and back. A notch in the top and front of the head probably indicates that the specimen was once supplied with a beak, either of turkois or of white shell. It is perforated lengthwise through the breast.

Plate VIII, Fig. 6, is a representation of a thoroughly typical conventional fetich of the black Eagle (K'iä'-k'iä-li kwín-ne) of the Lower regions. It is of calcite, stained lustrous black. A cotton cord around the neck supplies the place of the original "necklace."

THE MOLE—HUNTER GOD OF THE LOWER REGIONS.

The fetiches of the Mole, or God of the Lower regions (K'iä'-lu-tsi wé-ma-we, in the sacred orders; Maí-tu-pu wé-ma-we, in the order of the Hunt), are represented in the collection by only two specimens, Plate II, Fig. 6, and Plate IX, Fig. 1. The figure of a third specimen, taken from one of my sketches of the original in Zuñi, is given on Plate III, Fig. 5.

These fetiches being unpopular, because considered less powerful than those of the larger gods of prey, are very rare, and are either rude concretions with no definite form (Plate II, Fig. 6), or almost equally rude examples of art, as in Plate IX, Fig. 1, which represents the fetich of the white Mole (Maí-tu-pu kó-ha-na) of the Eastern Lower regions. It consists merely of a natural slab of fine white limestone.

Nevertheless, value is sometimes attached to the Mole, from the fact that it is able by burrowing to lay traps for the largest game of earth, which it is supposed to do consciously. For this reason it is sometimes represented with surprising fidelity, as in Plate III, Fig. 5.

THE GROUND OWL AND THE FALCON.

The fetiches of the Ground Owl (the Prairie Dog variety—Thlá-po-po-ke'-a' wé-ma-we) of all regions, are still more rarely represented and even less prized than those of the Mole. The only example in the collection is reproduced in Plate IX, Fig. 2. The original is quite carefully formed of soft white limestone, and is perforated to facilitate suspension.

The Falcon fetiches (Pí-pi wé-ma-we) are included in the Eagle species, as they are called the younger brothers of the Eagle, and supply the place of the red Eagle which variety is met with very rarely.

THEIR RELATIVE VALUES.

The relative value of these varieties of fetiches depends largely upon the rank of the Animal god they represent. For instance, the Mountain Lion is not only master of the North, which takes precedence over

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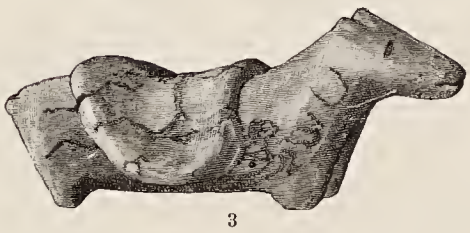

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THE MOLE AND THE GROUND-OWL FETICHES—HUNTER GODS OF THE LOWER REGIONS AND ALL REGIONS.

THE NAVAJO FETICHES—PHALLIC GODS OF THE FLOCKS.

all the other "ancient sacred spaces" (Té-thlä-shi-na-we) or regions, but is also the master of all the other Prey gods, if not of all other terrestrial animals. Notwithstanding the fact that the Coyote, in the Order of the Hunt (the Coyote society or the Sá-ni-a-k'ia-kwe), is given for traditional reasons higher *sacred* rank than the Mountain Lion, he is, as a Prey Being, one degree lower, being god of the West, which follows the North in order of importance. Hence we find the Mountain Lion and Coyote fetiches far more prized than any of the others, and correspondingly more numerous. The Coyote in rank is younger brother of the Mountain Lion, just as the Wild Cat is younger brother of the Coyote, the Wolf of the Wild Cat, and so on to the Mole, and less important Ground Owl. In relationship by blood, however, the yellow Mountain Lion is accounted older brother of the blue, red, white, spotted, and black Mountain Lions; the blue Coyote, older brother of the red, white, yellow, mottled or spotted, and black Coyotes. So the Wild Cat of the South is regarded as the older brother of the Wild Cats of all the other five regions. And thus it is respectively with the Wolf, the Eagle, and the Mole. We find, therefore, that in the North all the gods of Prey are represented, as well as the Mountain Lion, only they are yellow. In the West all are represented, as well as the Coyote, only they are blue; and thus throughout the remaining four regions.

The Mountain Lion is further believed to be the special hunter of the Elk, Deer, and Bison (no longer an inhabitant of New Mexico). His fetich is, therefore, preferred by the hunter of these animals. So, also, is the fetich of the Coyote preferred by the hunter of the Mountain Sheep; that of the Wild Cat, by the hunter of the Antelope; that of the Wolf, by the hunter of the rare and highly-valued Ó-ho-li; those of the Eagle and Falcon, by the hunter of Rabbits; and that of the Mole, by the hunter of other small game.

The exception to this rule is individual, and founded upon the belief that any one of the gods of Prey hunts to some extent the special game of all the other gods of Prey. Hence, any person who may discover either a concretion or natural object or an ancient fetich calling to mind or representing any one of the Prey gods will regard it as his special fetich, and almost invariably prefer it, since he believes it to have been "meted to" him (aṅ-ik-tchi-a-k'ia) by the gods.

THEIR CUSTODIAN.

Although these fetiches are thus often individual property, members of the Sá-ni-a-k'ia-kwe, and of the Eagle and Coyote gentes, as well as priests included in the Prey God Brotherhood, are required to deposit their fetiches, when not in use, with the "Keeper of the Medicine of the Deer" (Nál-e-ton í-lo-na), who is usually, if not always, the head member of the Eagle gens.

It rests with these memberships and these alone to perfect the fetiches when found, and to carry on at stated intervals the ceremonials and worship connected with them.

When not in use, either for such ceremonials or for the hunt, these tribal fetiches are kept in a very ancient vessel of wicker-work, in the House of the Deer Medicine (Nál-e-ton ín-kwïn), which is usually the dwelling place of the keeper.

THE RITES OF THEIR WORSHIP.

THE DAY OF THE COUNCIL OF THE FETICHES.

The principal ceremonial connected with the worship of the Prey Beings takes place either a little before or after the winter solstice or national New Year.

This is due to the fact that many of the members of the above-mentioned associations also belong to other societies, and are required on the exact night of the New Year to perform other religious duties than those connected with the fetich worship. Hence, the fetiches or gods of prey have their special New Year's day, called Wé-ma-a-wa ú-pu-k'ia té-wa-ne ("The day of the council of the fetiches").

On this occasion is held the grand council of the fetiches. They are all taken from their place of deposit and arranged, according to species and color, in front of a symbolic slat altar on the floor of the council chamber in a way I have attempted to indicate, as far as possible, by the arrangement of the figures on the plates, the quadrupeds being placed upright, while the Eagles and other winged fetiches are suspended from the rafters by means of cotton cords. Busily engaged in observing other ceremonials and debarred from actual entrance, until my recent initiation into the Priesthood of the Bow, I have unfortunately never witnessed any part of this ceremonial save by stealth, and cannot describe it as a whole. I reserve the right, therefore, to correct any details of the following at some future day.

The ceremonials last throughout the latter two-thirds of a night. Each member on entering approaches the altar, and with prayer-meal in hand addresses a long prayer to the assembly of fetiches, at the close of which he scatters the prayer-meal over them, breathes on and from his hand, and takes his place in the council. An opening prayer-chant, lasting from one to three hours, is then sung at intervals, in which various members dance to the sound of the constant rattles, imitating at the close of each stanza the cries of the beasts represented by the fetiches.

At the conclusion of the song, the "Keeper of the Deer Medicine," who is master priest of the occasion, leads off in the recitation of a long metrical ritual, in which he is followed by the two warrior priests with shorter recitations, and by a prayer from another priest (of uncertain

rank). During these recitations, responses like those of the litany in the Church of England may be heard from the whole assembly, and at their close, at or after sunrise, all members flock around the altar and repeat, prayer-meal in hand, a concluding invocation. This is followed by a liberal feast, principally of game, which is brought in and served by the women, with additional recitations and ceremonials. At this feast, portions of each kind of food are taken out by every member for the Prey gods, which portions are sacrificed by the priests, together with the prayer plume-sticks, several of which are supplied by each member.

CEREMONIALS OF THE HUNT.

Similar midnight ceremonials, but briefer, are observed on the occasion of the great midwinter tribal hunts, the times for which are fixed by the Keeper of the Deer Medicine, the master and warrior priests of the Sá-ni-a-k'ia-kwe; and the religious observances accompanying and following which would form one of the most interesting chapters connected with the fetich worship of the Zuñis.

These ceremonials and tribal hunts are more and more rarely observed, on account of the scarcity of game and of the death a few years since of the warrior priest above mentioned, without whose assistance they cannot be performed. This position has been recently refilled, and I hope during the coming winter to be enabled, not only to witness one of these observances, but also to join in it; a privilege which will be granted to me on account of my membership in the order of the Priesthood of the Bow.

Any hunter, provided he be one privileged to participate in the above described ceremonials—namely, a Prey brother—supplies himself, when preparing for the chase, not only with his weapons, &c., but also with a favorite or appropriate prey fetich. In order to procure the latter he proceeds, sooner or later before starting, to the House of the Deer Medicine (Nál-e-ton ï'n-kwïn), where the vessel containing the fetiches is brought forth by the Keeper or some substitute, and placed before him. Facing in the direction of the region to which belongs the particular fetich which he designs to use, he sprinkles into and over the vessel sacred prayer or medicine meal. Then holding a small quantity of the meal in his left hand, over the region of his heart, he removes his head-band and utters the following prayer:

Ma:	Lú-k'ia	yät-ton-né,	hom	tä-tchú,	hom	tsi-tá,	tom	lithl	hâ	té-
Why!	This	day,	my	father,	my	mether,	(te) thee	here	I	un-
kwïn-te	té-ä-tip,	o-ná	ël-le-te-k'iá.	Hothl	yam	á-tä-tchú	Kâ-kâ	A'-shi-		
expectedly	have	trail (by) road	evertaken.	Seever	fer my	Fathers	sacred dance	priest-		
wa-ní,	wé-ma	á-shi-wa-ní,	K'ia-pin-a-hâ-í	awën	hâ	lithl	yam			
(geds),	Prey	priest-(geds),	the animal	gods beings	theirs	I	here	my for them		
te-li-ki-ná	yel-le-te-u-k'o-ná	te-li-ki-ná	i-thle-a-nán	tom	lithl	hâ	o-ná			
sacred things (plumes, etc., literally relatives of the species.)	made ready	(which) sacred things	with (me) bringing	unte thee	here	I	read by trail			

ël-le-te-k'iá; tom lithl hâ häl-lo-wa-ti-nán thle-a-ú tom an té-ap-k'o-nan
overtaken (have); unto thee here I good fortune (ad)dress thy own wherewith (thou hast being)

ä'n-ti-shem-án a-k'iá yam á-wi-te-lin tsi-tá, hâ lithl té-u-su a-k'iá
wishing for hence, to my all earth mother I here (with prayer) (-from), prayer hence,

ó-ne yäthl kwai-k'ia-ná.
trail over go out shall.

Lé-we ú-lokh nan thla-ná tom te-ap-k'o-nán sho-hi-tá tom pi-nan
Thus much (of the) world great thy wherewith (thou hast being) (the) deer thy wind breath (of life)

a-k'iá a-u-la-shó. Awen shi-nán, awen k'iáh-kwïn hothl án-ti-she-mán
by henco encircle about wander around. Their flesh their Life fluid (blood) soever wanting

a-k'iá le-hok té-u-su a k'iá hâ ó-ne yäthl kwaí k'ia-ná.
hence yonder (from me) prayer hence with I trail over go out (shall).

Kwa-í-no-ti-nam hothl yam té-ap-k'o-nán a-k'iá hom tâ ke-tsä-ti-
Without fail (unfailingly) where-soever thy for me wherewith (thou hast being) hence (by) to me thou happy

k'ia-ná. Hom tâ té-k'o-ha-ná an-ík tchi-a-tú.
(make, do). Unto me thou (the) light meet with (*do*).

FREE TRANSLATION.

Why (of course)—

This day, my father (or, my mother), here I, (as if) unexpectedly, meet thee with whatsoever I have made ready of the sacred things of my fathers, the priest gods of the sacred dances, the priest gods of the Prey (beings). These sacred things bringing I have here overtaken thee, and with their good fortune I here address thee. Wishing for that whereby thou hast being, I shall go forth from here prayerfully upon the trails of my earth-mother.

Throughout the whole of this great country, they whereby thou hast being, the deer, by the command of thy wind of life (breath), wander about. It is wishing for their flesh and blood that I shall go forth yonder prayerfully out over the trails.

Let it be without fail that thou shall make me happy with that whereby thou hast being. Grant unto me the light of thy favor.

Then scattering forth the prayer-meal in the direction he proposes to take on the hunt, he chooses from the vessel the fetich, and pressing it to or toward his lips breaths from it and exclaims:

Ha! é-lah-kwá, hom tä-tchú (hom tsi-tá), lú-k'ia yät-ton-né o-né
Ah! Thanks, my father, (my mother), this day trails

yäthl ëh-kwé ta-pan hâ té-u-su a-k'iá, o-né yäthl kwaí-k'ia-ná.
over ahead taking I prayer with trails over go out shall.

FREE TRANSLATION.

Ah! Thanks, my father (or, my mother), this day I shall follow (thee) forth over the trails. Prayerfully over the trails I shall go out.

Should a party be going to the hunt together, all repair to the House of the Deer Medicine, repeating, one by one, the above prayers and ceremonial as the fetiches are drawn.

The fetich is then placed in a little crescent-shaped bag of buckskin

which the hunter wears suspended over the left breast (or heart) by a buckskin thong, which is tied above the right shoulder. With it he returns home, where he hangs it up in his room and awaits a favorable rain or snow storm, meanwhile, if but a few days elapse, retaining the fetich in his own house. If a hunter be not a member of the orders above mentioned, while he must ask a member to secure a fetich for him, in the manner described, still he is quite as privileged to use it as is the member himself, although his chances for success are not supposed to be so good as those of the proper owner.

During his journey out the hunter picks from the heart of the *yucca*, or Spanish bayonet, a few thin leaves, and, on reaching the point where an animal which he wishes to capture has rested, or whence it has newly taken flight, he deposits, together with sacrifices hereinafter to be mentioned, a spider knot (hó-tsa-na mu kwí-ton-ne), made of four strands of these yucca leaves. This knot must be tied like the ordinary cat-knot, but invariably from right to left, so that the ends of the four strands shall spread out from the center as the legs of a spider from its body. The knot is further characterized by being tied quite awkwardly, as if by a mere child. It is deposited on the spot over which the heart of the animal is supposed to have rested or passed. Then a forked twig of cedar is cut and stuck very obliquely into the ground, so that the prongs stand in a direction opposite to that of the course taken by the animal, and immediately in front, as it were, of the fore part of its heart, which is represented as entangled in the knot.

This process, in conjunction with the roar of the animal, which the fetich represents, and which is imitated by the hunter on the conclusion of these various ceremonials, is supposed to limit the power of flight of the animal sought, to confine him within a narrow circle, and, together with an additional ceremonial which is invariably performed, even without the other, is supposed to render it a sure prey. This is performed only after the track has been followed until either the animal is in sight, or a place is discovered where it has lain down. Then, in exactly the spot over which the heart of the animal is supposed to have rested, he deposits a sacrifice of corn pollen (tâ-ón-ia), sacred black war paint (tsú-ha-pa)—a kind of plumbago, containing shining particles, and procured by barter from the Ha-va-su-paí (Coçoninos), and from sacred mines toward the west—and prayer or sacred meal, made from white seed-corn (emblematic of terrestrial life or of the foods of mankind), fragments of shell, sand from the ocean, and sometimes turkois or green-stone, ground very fine, and invariably carried in pouches by all members of the sacred societies of Zuñi. To this mixture sacred shell beads or coral are sometimes added. Then, taking out the fetich, he breathes on it and from it, and exclaims "Si!", which signifies "the time has come," or that everything is in readiness. The exact meaning may, perhaps, be made clearer by an example. When all preparations have been made complete for a ceremonial, the word "Si!", uttered by

the master priest of the occasion, is a signal for the commencement of the ceremonials. It is therefore substituted for "Ma!", used in the foregoing prayer, whenever any preparations, like sacrifices and ceremonials, precede the prayer.

With this introduction he utters the accompanying prayer:

Lú-k'ia yät ton-né, hom tä-tehú k'ia-pin hâ-í, to-pin-té yät-ton-né, to-
This day my father game raw being, one day

pin-té teh-thli-na-né, tom an o-né yäthl u-lap-nap-té. Hothl yam á-wi-
one night thy own trail over round about (even) though. However to me earth your

te-lin tsi-tau-án to-pin-té i-te-tchu-ná hom tâ an-k'o-ha-ti-ná. Tom an
mother (with) one step to me thou shalt grant (favor). Thy own

k'iah-kwĭn an-ti-shi-ma-ná, tom an shi-i-nán án-ti-shi-mán a-k'iá tom
blood life-fluid wanting, thy own flesh wanting, hence to thee,

lithl hâ häl-lo-wa-ti-nán á-thle-a-ú thlâ á-thle-a-ú. Lé-we tá-kuthl po-ti'
here I good fortunes (ad)dress, treasure (ad)dress. Thus much all the woods round about filled

hom an tom yä't-ti-na tsú-ma-k'ie-ná. Hom á-tä-tehú, hom ton án-k'o-
to me mine you grasping strong shall. My all-fathers, to me you favor

ha-ti-na-wá. Hom ton té-k'o-ha-na án-ik-tehi-a-nap-tú.
do (all). To me you light (favor) meet with *do*.

FREE TRANSLATION.

Si! This day, my father, thou game animal, even though thy trail one day and one night hast (been made) round about; however, grant unto me one step of my earth-mother. Wanting thy life-blood, wanting thy flesh, hence I here address to thee good fortune, address to thee treasure.

All ye woods that fill (the country) round about me, (do) grasp for me strongly. [This expression beseeches that the logs, sticks, branches, brambles, and vines shall impede the progress of the chased animal.] My fathers, favor me. Grant unto me the light of your favor, do.

The hunter then takes out his fetich, places its nostrils near his lips, breaths deeply from them, as though to inhale the supposed magic breath of the God of Prey, and puffs long and quite loudly in the general direction whither the tracks tend. He then utters three or four times a long low cry of, "Hu-u-u-u!" It is supposed that the breath of the god, breathed in temporarily by the hunter, and breathed outward toward the heart of the pursued animal, will overcome the latter and stiffen his limbs, so that he will fall an easy prey; and that the low roar, as of the beast of prey, will enter his consciousness and frighten him so as to conceal from him the knowledge of any approach.

The hunter then rises, replaces his fetich, and pursues the trail with all possible ardor, until he either strikes the animal down by means of his weapons, or so worries it by long-continued chase that it becomes an easy capture. Before the "breath of life" has left the fallen deer (if it be such), he places its fore feet back of its horns and, grasping its

mouth, holds it firmly closed, while he applies his lips to its nostrils and breathes as much wind into them as possible, again inhaling from the lungs of the dying animal into his own. Then letting go he exclaims:

Ha! é-lah-kwá! hom tä-tchú, hom tcha-lé. Hom tâ tâ-sho-na-né,
Ah! Thanks! my father, my child. To me thou seeds (of earth)
k'iä-she-ma án-ik-tchi-a-nap-tú. Hom tâ té-k'o-ha-na, o-né, yäthl k'ok-
water (want) meet (grant) do. To me thou light trail (favor) over good
shi, án-ik-tchi-a-nap-tú.
meet (grant) do.

FREE TRANSLATION.

Ah! Thanks, my father, my child. Grant unto me the seeds of earth ("daily bread") and the gift of water. Grant unto me the light of thy favor, do.

As soon as the animal is dead he lays open its viscera, cuts through the diaphragm, and makes an incision in the aorta, or in the sac which incloses the heart. He then takes out the prey fetich, breathes on it, and addresses it thus:

Si! Hom tä-tchú, lú-k'ia yät-ton-né, lithl k'ia-pin-hâ-i an k'iáh-kwĭn
Si! My father this day here Game animal its life-fluid (blood)
a-k'iá tâs í-k'iah-kwi-ná, tâs i'-ke-i-nan a-k'iá i'-te-li-a-u-ná:
hence with, thou shalt dampen thyself, thou shalt (thy) heart hence with add unto:

FREE TRANSLATION.

Si! My father, this day of the blood of a game being thou shalt drink (water thyself). With it thou shalt enlarge (add unto) thy heart:

He then dips the fetich into the blood which the sac still contains, continuing meanwhile the prayer, as follows:

——— les-tik-lé-a ak'n' hâ-i', k'ia-pin-hâ-i an k'iáh-kwĭn, an shí-i-nan
likewise cooked done being, game being raw its fluid (of life) its flesh
a-k'iá hâ's lithl yam í-ke-i-nan í-te-li-a-u-ná.
hence with I shall here my heart add unto (enlarge).

FREE TRANSLATION.

——— likewise, I, a "done" being, with the blood, the flesh of a raw being (game animal), shall enlarge (add unto) my heart.

Which finished, he scoops up, with his hand, some of the blood and sips it; then, tearing forth the liver, ravenously devours a part of it, and exclaims, "É-lah-kwá!" (Thanks).

While skinning and quartering the game he takes care to cut out the *tragus* or little inner lobe of its ear, the clot of blood within the heart (ä'-te mul ú-li-k'o-na), and to preserve some of the hair. Before leaving, he forms of these and of the black paint, corn pollen, beads of turkois or turkois dust, and sacred shell or broken shell and coral beads before mentioned, a ball, and on the spot where the animal ceased to

breathe he digs a grave, as it were, and deposits therein, with prayer-meal, this strange mixture, meanwhile saying the following prayer:

Si! Lú-k'ia yät-ton-né, k'ia-pin-hâ-í, tó-pin-ta yät-ton-né tó-pin-ta
Si! This day gamo raw being, one day, one

teh-thli-na-né, lé-we tom o-né yäthl ú-lap-na-k'ia tap-té lú-k'ia yät-ton-né
night, thus much thy trail over circled about (even) though this day

te-kwïn-té te-ä-ti-pá, tom lithl hâ an-ah-ú'-thla-k'iá. Tom lithl hâ hä'l-lo-
(as if) unexpectedly was it thou here I upward pulling embraced. To thee here, I good

a-ti-nán thle-a-ú. Tom lithl hâ ó-ne-an thle-a-ú. Tom lithl hâ thlâ
fortune address To thee here I corn pollen the yellow address. To thee here I treasure

thle-a-ú. Yam an-i-kwan-a-k'iá hä'l-lo-wa-ti-nan, ó-ne-an, thlâ í-thle-a-u-
address. By thy knowledge-hence good fortune, the yellow, treasure, (thyself) shall

ná tâ thli-mon hâ-i í-ya-k'ia-nan hom an té u-su-pé-nan a-k'iá tâ
dress thou new being (thyself) making shall be my own prayer-speech hence with, thou

yä'-shu-a i-tú loh k'ia-ná. K'ia-pin-á-hâ-i á-te-kwi a-k'iá. Kwa hom
conversing como and go (shall). Game beings raw animals relative to in the direction of with. Not mine

i'-no-ti-nam tun a-k'iá tom lithl hâ hä'l-lo-wa-ti-nan, ó-ne-an, thlâ, á-thle-
fail to hence, to thee here I good fortune, the yellow, treasure (have) all

a-k'iá. Hom tâ té-k'o-ha-na an'-ik-tchi-a-nap-tú. O-né yäthl k'ok-shi
addressed. To me thou light grant (meet) do. Trail over good

hom tâ tcháw' il-lü'p ó-na yá-k'ia-nap-tú.
to me thou children together with, trail finish, *do.*

FREE TRANSLATION.

Si! This day, game animal, even though, for a day and a night, thy trail above (the earth) circled about—this day it has come to pass that I have embraced thee upward (from it). To thee here I address good fortune. To thee here I address the (sacred) pollen. To thee here I address treasure. By thy (magic) knowledge dressing thyself with this good fortune, with this yellow, with this treasure, do thou, in becoming a new being, converse with (or, of) my prayer as you wander to and fro.

That I may become unfailing toward the Game animals all, I have here addressed unto thee good fortune, the yellow and treasure.

Grant unto me the light of thy favor.

Grant unto me a good (journey) over the trail of life, and, together with children, make the road of my existence, do.

During the performance of these ceremonials the fetich is usually placed in a convenient spot to dry, and at their conclusion, with a blessing, it is replaced in the pouch. The hunter either seeks further for game, or, making a pack of his game in its own skin by tying the legs together and crossing them over his forehead like a burden strap, returns home and deposits it either at the door or just within. The women then come, and, breathing from the nostrils, take the dead animal to the center of the room, where, placing its head toward the East, they lay on either side of its body next to the heart an ear of corn (signifi-

cant of renewed life), and say prayers, which, though short, are not less interesting and illustrative of the subject than those already given, but which, unfortunately, I cannot produce word for word.

The fetich is returned to the Keeper of the Deer Medicine with thanksgiving and a prayer, not unlike that uttered on taking it forth, but which also I am unable to reproduce. It contains a sentence consigning the fetich to its house with its relatives, speaking of its quenched thirst, satisfied hunger, and the prospects of future conquests, etc.

THEIR POWER.

It is believed that without recourse to these fetiches or to prayers and other inducements toward the game animals, especially the deer tribe, it would be useless to attempt the chase. Untrammeled by the Medicine of the Deer, the powers of the fetiches, or the animals of prey represented, the larger game is unconquerable; and no man, however great his endurance, is accounted able to overtake or to weary them. It thus happens that few hunters venture forth without a fetich, even though they belong to none of the memberships heretofore mentioned. Indeed, the wearing of these fetiches becomes almost as universal as is the wearing of amulets and "Medicines" among other nations and Indian tribes; since they are supposed to bring to their rightful possessors or holders, not only success in the chase and in war (in the case of the Warriors or Priests of the Bow), but also good fortune in other matters.

The successful hunter is typical of possession, since the products of his chase yield him food, apparel, ornament, and distinction. It is therefore argued with strange logic that, even though one may not be a hunter, there must exist a connection between the possessions of the hunter and the possessions of that one, and that principally through the fetiches. A man therefore counts it the greatest of good fortune when he happens to find either a natural or artificial object resembling one of the animals of prey. He presents it to a proper member of the Prey Brotherhood, together with the appropriate flint arrow-point and the desirable amount of ornaments (thlâ-â) for dressing (thlé-a-k'ia-na) and finishing (í-ya-k'ia-na), as soon as possible.

PREY GODS OF THE PRIESTHOOD OF THE BOW.

THE KNIFE-FEATHERED MONSTER, THE MOUNTAIN LION, AND THE GREAT WHITE BEAR.

The Priesthood of the Bow possesses three fetiches, two of which are of the We-ma-á-hâ-i, (Plate X, Fig. 2, and Plate XI, Fig. 2.) The other is sometimes classed with these, sometimes with the higher beings, and may be safely said to form a connecting link between the idolatry proper of the Zuñis and their fetichism. These three beings are, the Mountain Lion (Plate X, Fig. 2), the great White Bear (Plate XI, Fig. 2), (Áiŋ-shi k'ó-ha-na—the god of the scalp-taking ceremonials), and the Knife-feathered Monster (Á-tchi-a lä-to-pa), (Plate X, Fig. 1).

This curious god is the hero of hundreds of folklore tales, and the tutelar deity of several of the societies of Zuñi. He is represented as possessing a human form, furnished with flint knife-feathered pinions, and tail. His dress consists of the conventional terraced cap (representative of his dwelling-place among the clouds), and the ornaments, badge, and garments of the Kâ'-kâ. His weapons are the Great Flint-Knife of War, the Bow of the Skies (the Rain-bow), and the Arrow of Lightning, and his guardians or warriors are the Great Mountain Lion of the North and that of the Upper regions.

He was doubtless the original War God of the Zuñis, although now secondary, in the order of war, to the two children of the Sun mentioned at the outset.

Anciently he was inimical to man, stealing and carrying away to his city in the skies the women of all nations, until subdued by other gods and men of magic powers. At present he is friendly to them, rather in the sense of an animal whose food temporarily satisfies him than in the beneficent character of most of the gods of Zuñi.

Both the Great White Bear and the Mountain Lion of the War Priesthood are, as well as the Knife-feathered Demon, beings of the skies. For this reason the fetich of the Mountain Lion of the skies (of aragonite) is preferred by a Priest of the Bow above all other kinds or colors. Unfortunately, none of the fetiches of this priesthood are to be found in the collections of the Bureau, and but one, with its pouch, has been reproduced from the original, which is in my possession. It was not presented to me with my other paraphernalia on the night of the final ceremonials of my initiation into the Priesthood of the Bow, but some months afterward when I was about to start on a dangerous expedition. At this time I was charged with carefully preserving it during life as my special fetich, and instructed in the various usages connected with

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SHIELD AND FETICH OF THE PRIESTHOOD OF THE BOW

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SHIELD AND FETICH OF THE PRIESTHOOD OF THE BOW.

it. The other was drawn from a sketch made by myself of a fetich in Zuñi.

These fetiches—more usually of the Mountain Lion than of the others; very rarely of the Knife-feathered Demon—are constantly carried by the warriors when abroad in pouches like those of the Hunters, and in a similar manner. They are, however, not returned to the headquarters of the society when not in use, but, being regarded, with the other paraphernalia of their possessor, as parts of his Sá-wa-ni-k'ia, are always kept near him.

RESEMBLANCE TO THE PREY GODS OF THE HUNT.

The perfect fetich of this order differs but little from those of the Hunters, save that it is more elaborate and is sometimes supplied with a minute heart of turkois bound to the side of the figure with sinew of the Mountain Lion, with which, also, the arrow-point is invariably attached, usually to the back or belly. The precious beads of shell, turkois, coral, or black stone, varied occasionally with small univalves from the ocean, are bound over all with a cotton cord. These univalves, the oliva (tsu-i-ke-i-nan-ne=heart shell), are, above all other shells, sacred; and each is emblematic of a god of the order. The wrist badges of the members are also made of these shells, strung on a thong of buckskin taken from the enemy. The arrow-point, when placed on the back of the fetich, is emblematic of the Knife of War (Sá-wa-ni-k'ia ä'-tchi-ën-né), and is supposed, through the power of Sá-wa-ni-k'ia or the "magic medicine of war"(?) to protect the wearer from the enemy from behind or from other unexpected quarters. When placed "under the feet" or belly, it is, through the same power, considered capable of effacing the tracks of the wearer, that his trail may not be followed by the enemy.

THE RITES OF THEIR WORSHIP.

The ceremonial observed by a Priest of the Bow, when traveling alone in a country where danger is to be apprehended from the enemy, may be taken as most illustrative of the regard in which the fetiches of his order are held.

Under such circumstances the warrior takes out his fetich from the pouch, and, scattering a pinch or two of sacred flour toward each of the four quarters with his right hand, holds it in his left hand over

his breast, and kneels or squats on the ground while uttering the accompanying prayer:

Si! Lú-k'ia yät-ton-né, hom a-tä-tchú K'ia-pin-á-hâ-i lé-we í-na-kwe
Si! This day, my Fathers, Animal Beings, (all) thus much (by) enemies

pó-ti-tap-té hom ton té-hi-a-na-wé. Ethl tel-i-kwën-te thlothl tchu-a
filled through me ye precious render (all do). Not that (in any) way unexpected soever whom (of the)

í-na-kwe hom kwa'-hothl a-k'iá a-tsu-ma-na-wam-i-k'ia-ná. Lú-k'ia yät-
enemy my whatsoever with daring (existence) (pl.) shall. This day

ton-né hom to le'–na
to me ye thus

[At this point, while still continuing the prayer, he scratches or cuts in the earth or sands with the edge of the arrow-point, which is lashed to the back or feet of the fetich, a line about five or six inches in length].

ai'-yäl-la-na-wá. Ethl thlothl-tchu-á í-na-kwe í-pi-kwai-nam-tun a-k'iá
shelter (pl.) shall give. Not that whomsoever (of the) enemy pass themselves through to hence
shield

hom ton aí-yäl-la-na-wá. [Here he scratches a second line.] Hâk-ti-
to me ye shelter shield (pl.) shall (give), Tail-long

tä'sh-a-ná, [scratches a third line.] Ä-tchi-a-lä'-to-pá, [scratches a fourth
(Mountain Lion), Knife-feathered,

line] hom ton í-ke-i-nan aí-yäl-la-na-wá.
my ye heart shelter shield (pl.) shall give.

[These lines, although made immediately in front of the speaker, relate to the four points of the compass, the other two regions not being taken into account, since it is impossible for the enemy to bring harm from either above or below the plane on which the subject moves. It may be well to add, also, that four (the number of the true fingers) is the sacred numeral of the Zuñis, as with most all Indian tribes and many other lower races.]

FREE TRANSLATION.

Si! This day, my fathers, ye animal gods, although this country be filled with enemies, render me precious. That my existence may not be in any way so ever unexpectedly dared by the enemy, thus, O! shelter give ye to me (from them). (In order) that none of the enemy may pass through (this line) hence, O! shelter give ye to me (from them). Long Tail [Mountain Lion], Knife-feathered [God of the Knife Wings], O! give ye shelter of my heart from them.

On the conclusion of this prayer the fetich is breathed upon and replaced, or sometimes withheld until after the completion of the war-song and other chants in which the three gods mentioned above are, with others, named and exhorted, thereby, in the native belief, rendering protection doubly certain. I am of course thoroughly familiar with

these war chants, rituals, etc. They abound in archaic terms and are fraught with great interest, but belong more properly to another department of Zuñi worship than that of the mere fetichism; as, indeed, do most other recitations, chants, etc., of the War society, in any way connected with this worship.

Before following the trail of an enemy, on finding his camp, or on overtaking and destroying him, many ceremonials are performed, many prayers are uttered, much the same as those described relative to the chase, save that they are more elaborate and more irrelevant to the subject in hand. As with the Hunter, so with the Warrior, the fetich is fed on the life-blood of the slain.

OTHER FETICHES.

FETICHES OF NAVAJO ORIGIN.

THE PONY.

Among other specimens in the collection to which these notes relate are several pieces representing the horse and domesticated sheep, of which Plate IX, Figs. 3 and 4, are the best examples. Both are of Navajo importation, by which tribe they are much prized and used. The original of Fig. 3 represents a saddled pony, and has been carefully carved from a small block of compact white limestone veined like Italian marble. This kind of fetich, according to the Zuñis, is manufactured at will by privileged members of the Navajo nation, and carried about during hunting and war excursions in "medicine bags," to insure the strength, safety, and endurance of the animals they represent.

THE SHEEP.

Plate IX, Fig. 4, represents a superb large sheep fetich of purplish-pink fluorspar, the eyes being inlaid with small turkoises. Such are either carried about by the shepherds or kept in their huts, and, together with certain ceremonials, are supposed not only to secure fecundity of the flocks, but also to guard them against disease, the animals of prey, or death by accident.

AMULETS AND CHARMS.

In addition to the animal fetiches heretofore described, many others are found among the Zuñis as implements of their worship, and as amulets or charms for a variety of purposes. The painted and plumed prayer-sticks are of this character.

The amulets proper may be roughly divided into three classes:

1. Concretions and other strange rock formations, which, on account of their forms, are thought to have been portions of the gods, of their weapons, implements, and ornaments, their té-ap-ku-na-we (the wherewithals of Being).

2. The sacred relics of the gods, which are supposed to have been given to man directly by their possessors, in the "days of the new," and include the "Gifts of the Gods" (yél-le-te-li-we).

3. The magic "medicines" which are used as protective, curative, and productive agencies, and are known as the é tâ we and á-kwa-we (the "contained" and the "medicines").

One objeet, a mere concretion, will have something about it suggesting an organ of the human body. (See, for example, Fig. 1.) It will then be regarded as the genital organ of some ancient being, and will be highly prized, not only as a means of approaching the spirit of the god to whom it is supposed to have once belonged, but also as a valuable aid to the young man in his conquests with the women, to the young woman in her hope to bear male children.

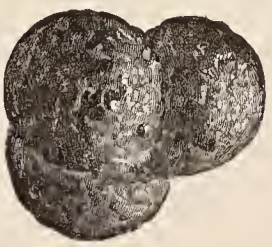

FIG. 1.—Concretion.

Again, certain minerals (Fig. 2), or fossils, etc. (Fig. 3), will be regarded as belonging to, or parts of, the gods, yet will be used as medicines ofwar or the chase, or by means of which water may be produced or crops stimulated, to say nothing of their efficacy as cures, or sources of strength, etc. For instance, Fig. 2 is of aragonite, hence referred to the Upper regions, and therefore valuable to give efficacy to the paint with which plume-sticks of rain prayers are decorated; while Fig. 3, from its shape, is supposed to represent the relic of the weapon or tooth of a god, and therefore endowed with the power of Sá-wa-ni-k'ia, and hence is preserved for generations—with an interminable variety of other things—in the Order of the Warriors, as the "protective medicine of war" (Shom-i-tâ-k'ia). A little of it, rubbed on a stone and mixed with much water, is a powerful medicine for protection, with which the warrior fails not to anoint his whole body before entering battle.

FIG. 2.—Mineral fetich.

FIG. 3.—Fossil fetich.

These amulets and implements of worship are well illustrated in the National Museum, and the subject merits extensive treatment. The facts connected with them will throw much light upon the mental characteristics and beliefs of the Zuñis. At some future time I hope to set this matter forth more fully.

NOTE.—It is to be regretted that the haste in which this paper was prepared by the author, before his departure for New Mexico, to resume his researches among the Zuñis, made it impossible for him to discuss further this interesting subject. The abundant material in his possession, gained from actual membership in the order or society under discussion, would have rendered this comparatively easy under other circumstances.—Ed.

SMITHSONIAN INSTITUTION——BUREAU OF ETHNOLOGY.

MYTHS

OF

THE IROQUOIS.

BY

ERMINNIE A. SMITH.

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MYTHS OF THE IROQUOIS.

By Erminnie A. Smith.

CHAPTER I.

GODS AND OTHER SUPERNATURAL BEINGS.

The principal monuments of the once powerful Iroquois are their myths and folk-lore, with the language in which they are embodied. As these monuments are fast crumbling away, through their contact with European civilization, the ethnologist must hasten his search among them in order to trace the history of their laws of mind and the records of their customs, ideas, laws, and beliefs. Most of these have been long forgotten by the people, who continue to repeat traditions as they have been handed down through their fathers and fathers' fathers, from generation to generation, for many centuries.

The pagan Iroquois of to-day (and there are still many) will tell you that his ancestors worshiped, as he continues to do, the "Great Spirit," and, like himself, held feasts and dances in his honor; but a careful study of the mythology of these tribes proves very clearly that in the place of one prevailing great spirit (the Indian's earliest conception of the white man's God) the Iroquois gods were numerous. All the mysterious in nature, all that which inspired them with reverence, awe, terror, or gratitude, became deities, or beings like themselves endowed with supernatural attributes, beings whose vengeance must be propitiated, mercy implored, or goodness recompensed by thank-offerings. The latter were in the form of feasts, dances, or incense.

Among the most ancient of these deities, and regarding which the traditions are the most obscure, were their most remote ancestors—certain animals who later were transformed into human shape, the names of the animals being preserved by their descendants, who have used them to designate their gentes or clans.

Many races in that particular stage of savagery when the human intellect is still in its child-like state, being impressed by the awful and incomprehensible power of Thunder, have classed it foremost among

their deities, with attributes proportioned to the disposition or status of the worshiper.

Hi-nu^{n}, the beneficent Thunder God of the Iroquois, compares most favorably with the same god as worshiped by other races. Ever accompanied by his equally powerful assistants, his mission was understood to be only to promote the welfare of that favored people, though isolated personal offenses might demand from him a just retribution. It was therefore safe to make unto him, on his near approach to earth, his most acceptable offering, the burning tobacco, and so firmly rooted has become that ancient custom, that the aged superstitious Iroquois of to-day can often be seen making this little offering on the near approach of every thunder-storm. It is not difficult to follow the crude reasoning by which was ascribed to Hi-nu^{n} the goodness and glory of having destroyed the giant monsters which either poisoned the waters or infested the land. That such had existed was evident from the bones often discovered, and what power other than the crashing bolt of Hi-nu^{n} could have accomplished their destruction? The similarity discoverable in the myths of many peoples regarding the Thunder God and his mission of destruction to giant animals, making this an almost universal myth, is probably traceable to this simple and natural explanation, and presents no argument that the myth itself has traveled. It may, then, be safely assumed that Hi-nu^{n} was an indigenous god of the Iroquois, the product of their own crude reasoning powers.

Brother of the great Hi-nu^{n} was the West Wind, who, with him, brought from the clouds the vivifying rain, and who finally assisted the Iroquois in the extermination of the powerful stone giants. Therefore, the West Wind ranks as a beneficent deity or spirit.

The North Wind brought only calamity in its train, often killing the unripe corn and freezing the rivers, thus depriving the people of their needed sustenance, and from the mere touch of his icy fingers the benighted hunter became stiff in death. This ranked as an evil deity ever to be feared and propitiated.

Echo, the Mars of the Iroquois, only exercised his power during their wars with other tribes, in which, by repeating among the hills their cries of Go-weh, he insured their almost certain victory. He was ever honored with special thanksgiving.

Of Tă-rhu^{n}-hyiă-wăh-ku^{n} (who bore the important office of Holder of the Heavens) there is little more known than that he brought out from their mother earth the six tribes composing the Iroquois.

These are some of the Iroquois gods, a knowledge of whose existence is contained only in myths, for they belong to the charmed "mythologic age." As, however, the Iroquois tribes have not entirely passed the boundaries of that age, it is proper to mention some of their more modern divinities, in whose worship are intermingled many of their ancient ceremonies.

The "Great Spirit," so popularly and poetically known as the god of

RETURNING THANKS TO THE GREAT SPIRIT.

the red man, and the "Happy Hunting-ground," generally reported to be the Indian's idea of a future state, are both of them but their ready conception of the white man's God and Heaven. This is evident from a careful study of their past as gleaned from the numerous myths of their prehistoric existence.

It may be true that many of the first missionaries found them in possession of such ideas, but the Indians had long been in contact with white men from whom those ideas were obtained, and there was no incongruity in simply adding them to their former beliefs, as no fundamental change was required. They accepted the Great Spirit, but retained in many instances their former gods as his attributes, considering the thunder as his voice and the winds as his breath, and at the same time they introduced into their pagan worship a form of the trinity which is still preserved, consisting of the Great Spirit, the Sun, and Mother Earth.

Good and evil spirits also play an important rôle in Iroquoian mythology. Among the good spirits are the three sisters who still continue to preside over the favorite vegetables—corn, beans, and squashes. They are represented as loving each other very dearly and dwelling together in peace and unity. The vines of the vegetables grow upon the same soil and cling lovingly around each other. The spirit of corn is supposed to be draped with its long leaves and silken tassels. The sister who guards the bean has a wreath of its velvety pods with garments of the delicate tendrils, while the spirit of squashes is clothed with the brilliant blossoms under her care. In bright nights the sisters can be seen flitting about or heard rustling among the tall corn. To this day yearly festivals are held in their honor, and they are appealed to as "Our life, our supporters."

Among the supernatural beings corresponding to good and evil genii were the Great Heads, with ever watchful eyes, and long hair which served them as wings to bear them on missions of mercy or of destruction. This pure product of the Indian imagination figures largely in the unwritten literature of the Iroquois. There were also in those days stone giants, always the mortal enemy of man, but whose final extermination furnished the theme for wonderful stories of daring deeds performed oftentimes under the influence of charms or magic, but never in too marvelous a manner to disturb the credulity of the eager listener.

Although Atotarho and Hiawatha were contemporary personages, whose names are still continued in the list of chiefs of the present day, the myths which have accumulated around their history are so many and varied that it is impossible to define the vague boundary line separating fact from fiction. They may, therefore, be properly classed as demigods. The name of the former, which signifies "the entangled," together with his skill, cunning, and cruelty in war, soon resulted in his becoming invested with the title of a wizard. The origin of his name is attributed to his marvelous hair, which consisted of living snakes,

and thus he is represented by the pictographers of his time. He is still regarded by his tribe as having been a being with supernatural endowments.

Among the same tribe, the Onondagas, are found what may be termed the "Hiawatha legends." So numerous and yet different are these stories, that they may be regarded as the histories of a long line of Hiawathas, the Hiawatha being the official name of one of the most important functionaries in the tribal government. These stories, in their relation through many generations, have at last become applied to one person, who is thus most marvelously endowed, as far surpassing all in goodness as did Atotarho in the opposite attributes. To him is ascribed the honor of having established the Great Confederacy of the Iroquois which so long rendered them invincible in war. His name, which signifies "He who seeks the wampum belt,"* probably led to the superstition of his having invented wampum. To accomplish his wonderful feats, he was provided with a magic canoe which obeyed his bidding. The legendary apotheosis accorded him, in which he is represented as ascending to Heaven in a white canoe, appears to be of modern origin.

HI-NU^N DESTROYING THE GIANT ANIMALS.

A hunter in the woods was once caught in a thunder-shower, when he heard a voice calling upon him to follow. This he did until he found himself in the clouds, the height of many trees from the ground. Beings which seemed to be men surrounded him, with one among them who seemed to be their chief. He was told to look below and tell whether he could see a huge water-serpent. Replying that he could not, the old man anointed his eyes, after which he could see the monster in the depths below him. They then ordered one of their number to try and kill this enemy to the human race. Upon his failing, the hunter was told to accomplish the feat. He accordingly drew his bow and killed the foe. He was then conducted back to the place where he had sought shelter from the storm, which had now ceased.

This was man's first acquaintance with the Thunder God and his assistants, and by it he learned that they were friendly toward the human race, and protected it from dragons, serpents, and other enemies.

A SENECA LEGEND OF HI-NU^N AND NIAGARA.

A beautiful Indian maiden was about to be compelled by her family to marry a hideous old Indian.

* This is the interpretation given by the tribe, the real meaning, as Pére Cuoq suggests, being a "river maker," which implies alliance between nations, and as wampum was used for treaties, the original idea seems to have been retained after the word itself has become denotive.

Despair was in her heart. She knew that there was no escape for her, so in desperation she leaped into her canoe and pushed it from shore on the roaring waters of Niagara. She heeded not that she was going to her death, preferring the angry waters to the arms of her detested lover.

Now, the God of Cloud and Rain, the great deity Hi-nu[n], who watches over the harvest, dwelt in a cave behind the rushing waters. From his home he saw the desperate launching of the maiden's canoe; saw her going to almost certain destruction. He spread out his wings and flew to her rescue, and caught her just as her frail bark was dashing on the rocks below.

The grateful Indian girl lived for many weeks in Hi-nu[n]'s cave. He taught her many new things. She learned from him why her people died so often—why sickness was always busy among them. He told her how a snake lay coiled up under the ground beneath the village, and how he crept out and poisoned the springs, because he lived upon human beings and craved their flesh more and more, so that he could never get enough if they died from natural causes.

Hi-nu[n] kept the maiden in till he learned that the ugly old suitor was dead. Then he bade her return and tell her tribe what she had learned of the great Hi-nu[n].

She taught them all he had told her and begged them to break up their settlement and travel nearer to the lake; and her words prevailed. For a while sickness ceased, but it broke out again, for the serpent was far too cunning to be so easily outwitted. He dragged himself slowly but surely after the people, and but for Hi-nu[n]'s influence would have undermined the new settlement as he had the former one. Hi-nu[n] watched him until he neared the creek, then he launched a thunderbolt at him. A terrible noise awoke all the dwellers by the lake, but the snake was only injured, not killed. Hi-nu[n] was forced to launch another thunderbolt, and another and another, before, finally, the poisoner was slain.

The great dead snake was so enormous that when the Indians laid his body out in death it stretched over more than twenty arrow flights, and as he floated down the waters of Niagara it was as if a mountain appeared above them. His corpse was too large to pass the rocks, so it became wedged in between them and the waters rose over it mountains high. As the weight of the monster pressed on the rocks they gave way and thus the horseshoe form, that remains to this day, was fashioned. But the Indians had no more fever in their settlement.

THE THUNDERERS.

The following story, as related to me by Horatio Hale, who received it from an Indian chief, shows that sustained imaginative power which seems to distinguish the myths of the Iroquoian family.

On one occasion in the ancient time three warriors set out on an expedition. When they were far distant from their own land, one of them had the misfortune to break his leg. By the Indian law it became the duty of the others to convey their injured comrade back to his home. They formed a rude litter, and, laying him upon it, bore him for some distance.

At length they came to a ridge of mountains. The way was hard and the exertion severe. To rest themselves, they placed their burden on the ground. They withdrew to a little distance and took evil counsel together. There was a deep hole, or pit, opening into the ridge of the mountain at a little distance from the place where they were sitting. Returning to the litter, they took up their helpless load, carried him near the brink of the pit, and suddenly hurled him in. Then they set off rapidly for their own country. When they arrived they reported that he had died of wounds received in fight. Great was the grief of his mother, a widow, whose only support he had been. To soothe her feelings they told her that her son had not fallen into the enemy's hands. They had rescued him, they said, from that fate, had carefully tended him in his last hours, and had given his remains a becoming burial.

They little imagined that he was still alive. When he was thrown down by his treacherous comrades he lay for some time insensible at the bottom of the pit. When he recovered his senses, he observed an old gray-headed man seated near him, crouching into a cavity on one side of the pit. "Ah, my son," said the old man, "what have your friends done to you?" "They have thrown me here to die, I suppose," he replied, with true Indian stoicism. "You shall not die," said the old man, "if you will promise to do what I require of you in return for saving you." "What is that?" asked the youth. "Only that when you recover you will remain here and hunt for me and bring me the game you kill." The young warrior readily promised, and the old man applied herbs to his wound and attended him skillfully until he recovered. This happened in the autumn. All through the winter the youth hunted in the service of the old man, who told him that whenever he killed any game too large for one man to carry, he would come himself and help to convey it to the pit, in which they continued to reside. When the spring arrived, bringing melting snows and frequent showers, he continued his pursuit of the game, though with more difficulty. One day he encountered an enormous bear, which he was lucky enough to kill. As he stooped to feel its fatness and judge of its weight, he heard a murmur of voices behind him. He had not imagined that any human beings would find their way to that lonely region at that time of the year. Astonished, he turned and saw three men, or figures in the shape of men, clad in strange cloud-like garments, standing near him. "Who are you?" he asked. In reply they informed him that they were the Thunderers (Hi-nu^{n}). They told him that their mission was to keep the earth and everything upon it in good order for the benefit of the human race. If

STONE GIANT OR CANNIBAL.

there was a drought, it was their duty to bring rain; if there were serpents or other noxious creatures, they were commissioned to destroy them, and, in short, to do away with everything injurious to mankind. They told him that their present object was to destroy the old man to whom he had bound himself, and who, as they would show him, was a very different sort of being from what he pretended to be. For this they required his aid. If he would assist them he would do a good act, and they would convey him back to his home, where he would see his mother and be able to take care of her. This proposal and their assurances overcame any reluctance the young man might have felt to sacrifice his seeming benefactor. He went to him and told him that he had killed a bear and needed his help to bring it home. The old man was anxious and uneasy. He bade the youth examine the sky carefully and see if there was the smallest speck of cloud visible. The young man replied that the sky was perfectly clear. The old man then came out of the hollow and followed the young hunter, urging him constantly to make haste, and looking upward with great anxiety. When they reached the bear they cut it up hurriedly with their knives, and the old man directed the youth to place it all on his shoulders. The youth complied, though much astonished at his companion's strength. The old man set off hastily for the pit, but just then a cloud appeared and the thunder rumbled in the distance. The old man threw down his load and started to run. The thunder rumbled nearer, and the old man assumed his proper form of an enormous porcupine, which fled through the bushes, discharging its quills like arrows backward as it ran. But the thunder followed him, with burst upon burst, and finally a bolt struck the huge animal, which fell lifeless into its den.

Then the Thunderers said to the young man, "Now, that we have done our work here, we will take you to your home and your mother, who is grieving for you all the time."

They gave him a dress like that which they wore, a cloud-like robe, having wings on its shoulders, and told him how these were to be moved. Then he rose with them in the air, and soon found himself in his mother's cornfield. It was night. He went to her cabin, and drew aside the mat which covered the opening. The widow started up and gazed at him in the moonlight with terror, thinking that she saw her son's ghost. He guessed her thoughts. "Do not be alarmed, mother," he said; "it is no ghost. It is your son come back to take care of you." As may be supposed, the poor woman was overjoyed, and welcomed her long-lost son with delight. He remained with her, fulfilling his duties as a son, for the rest of the year. What was done to his treacherous comrades is not recorded. They were too insignificant to be further noticed in the story, which now assumes a more decided mythological character.

When the Thunderers bade farewell to the young man they said to him, "We will leave the cloud-dress with you. Every spring, when we

return, you can put it on and fly with us to be witness to what we do for the good of man." Accordingly, the youth hid the dress in the woods, that no one might see it, and waited until the spring. Then the Thunderers returned, and he resumed the robe, and floated with them in the clouds over the earth. As they passed above a mountain he became thirsty, and seeing below him a pool he descended to drink of it. When he rejoined his companions they looked at him, and saw that the water with which his lips were moist had caused them to shine as if smeared with oil. "Where have you been drinking?" they asked him eagerly. "In yonder pool," he answered, pointing to where it lay still in sight. They said, "There is something in that pool which we must destroy. We have sought it for years, and now you have happily found it for us." Then they cast a mighty thunderbolt into the pool, which presently became dry. At the bottom of it, blasted by the thunder, was an immense grub, of the kind which destroys the corn and beans and other products of the fields and gardens; but this was a vast creature ("as big as a house," said the chief), the special patron and representative of all grubs. After accompanying his spirit friends to some distance, and seeing more of their good deeds of the like sort, the youth returned home and told his friends that the Thunder was their divine protector, and narrated the proofs which he had witnessed of this benignant character. Thence originated the honor in which the Thunder is held among the Indians. Many Iroquois still call Hi-nu^n their grandfather.

ECHO GOD.

When engaged in wars with different nations the voice of the Echo God served for signals, as it would only respond to the calls of Iroquois. At the coming of evening it was used by them to call in those who were out on the war-path. When the warrior would whoop the Echo God would take it up and carry it on through the air, the enemy not being able to hear it, as this was the special god of the Six Nations. Therefore when they had gained a great victory a dance was held to give praise to this god. When enemies were killed their victors called out as many times as there were persons killed, the cry being "Goh-weh! Goh-weh!" "I'm telling you!" These words the Echo God took up and repeated. But if one of their own tribe was killed they called out, "Oh-weh! Oh-weh!" meaning "Our own!"

After any of these signals were given all assembled together to hold council and make arrangements for an attack or pursuit. Then were sent out runners, who also proclaimed. If no response was made by the Echo God it was an omen that they should not start, but they continued calling, and if the god still remained silent, a service was held to ask the cause of his anger.

When a warfare was ended victoriously a dance was held to the Echo God and the nations assembled to rejoice—but first to mourn for the dead and decide on the fate of the captives. As the Echo God was never called upon except in emergencies during warfare, now since wars are over the feast and dance to the Echo God have ceased to be a part of the Iroquois ceremonies.

EXTERMINATION OF THE STONE GIANTS.

Related by MR. O'BEILLE BEILLE, grandson of Cornplanter.

The stone giants, who principally inhabited the far West, resolved to come East and exterminate the Indians. A party of Senecas, just starting out on the war-path, were warned of their impending danger and were bidden to accept the challenge to fight the stone giants and appoint a time and place. This they did. At the appointed time the giants appeared at the place, which was near a great gulf. Then there came a mighty wind from the west which precipitated the whole race of giants down into the abyss, from which they were never able to extricate themselves, and the God of the West Wind was ever after held in reverence by the Senecas.

THE NORTH WIND.

It was the custom at a certain season for the medicine men to go about demanding gifts of the people; but an icy figure had also appeared, demanding a man as a sacrifice; whereupon the Thunder God was appealed to, and he came to the rescue with his assistants and chased the figure far into the north, where they doomed the icy demon to remain. To this day his howling and blustering are heard, and when any venturesome mortal dares to intrude too far towards his abode his frosty children soon punish the offender. He is termed Kă-tăsh-hŭaht, or North Wind, and ranks as an evil spirit.

GREAT HEAD.

It was a common belief among Indians that there was a strange, human-like creature, consisting simply of a head made terrific with large eyes and covered with long hair. His home was upon a huge rock, a rifted promontory, over which his long hair streamed in shaggy fierceness.

Seen or unseen, if he saw anything that had the breath of life he growled: "Kûⁿñ″-kuⁿ, Kuⁿñ″-kuⁱⁿ, wă″-h-tci′-ha″-i-h"; that is, "I see thee, I see thee, thou shalt die," or "thou shalt suffer."

In a distant wilderness there lived a man and his wife with ten children, all boys. In the course of events the father died, and was soon followed by the mother of the boys, who were now left alone with their uncle. They were greatly afflicted by the loss of both parents but after a while resumed their hunting for support.

As was customary, the older brothers went to their hunting grounds and the younger ones staid at home. One day they looked for the return of their elder brother in vain; they also looked in vain for the second brother's return. Then the oldest of those at home said, "I will go to look them up"; and he went off, but did not return that night. The next brother then went to hunt for his lost brothers. He also did not return, and thus it was with all until the youngest brother was left alone with his aged uncle.

The youngest brother was forbidden to go away from home lest he too should be lost. One day the two were out in the woods, when the younger one, stepping over a log, heard a noise like a groan, which seemed to come from the earth. The groan being repeated, they concluded to dig into the earth, where they discovered a man covered with mould, and taking him and setting him up they saw some signs of life and were convinced that he was alive. Then the old man said to the lad, "Run for the bear's oil." When brought, they rubbed it over him, and at last were well pleased to see returning consciousness.

In caring for him they at first fed him on oil until he began to move his eyes and talk. The strange man then told them that he did not know how long he had been there, that all he knew was that the last time he went out was to hunt. They persuaded him to stay with them, whereupon he related the story of the nine brothers who had so mysteriously disappeared. They then discovered that the stranger was somewhat supernatural, for he told them very strange things.

One night he said, "I cannot sleep; hearken to the great noise in this direction. I know what it is—it is my brother, the Great Head, who is howling through this hurricane. He is an awful being, for he destroys those who go near him." "Is he your brother?" "Yes, own brother." "If you sent for him would he come here?" "No," he replied; "but perhaps I might entice him to come here. I will try; but if he comes you must make great provision for him; you must cut a huge maple tree into blocks, for that is what he eats." The stranger inquired how far he would be obliged to go to find the home of the "Head." The uncle replied, "You would get there about noon." Early the next morning he took his bow and started. When he came to a hickory tree he pulled it up, and from its roots he made arrows, and then ran onward until he came to a place answering the description given him, near which he was to find the end of his journey. Remembering that he was

ATOTARHO—WAR CHIEF.

warned to look out for the "Great Eyes," which would be sure to see him, he called for a mole, to which he said, "I am going in this direction and I want you to creep down under the grass where you will not be seen." Having gone into the mole, he at last saw the Great Head through the blades of grass. Ever watchful, the head cried out "Kuⁿñ-kuⁿ," "I see thee." The man in the mole saw that the "Head" was watching an owl, then drawing his bow, he shot an arrow into the Great Head, crying, "I came after you." The arrow as it flew to its mark became very large, but as it was returning became as small as when it left the bow. Thereupon, taking the arrow, he ran swiftly toward home; but he had not gone far when he heard a great noise like the coming of a storm. It was the Great Head riding on a tempest. Unshaken by this, he continued to run until he saw that the Great Head was coming down to the spot where he was, when he drew his bow again, and as the arrow left the bow it became larger as it sped, and it drove the Great Head away as before it had done. These maneuvers were repeated many times. In the meanwhile the uncle had prepared a mallet, and now he heard the rush and roar of the coming hurricane and said, "The stranger has allured him home." He now went to the door and said, "We must hammer him; here, take this mallet." As the Great Head came bursting through the door, the two men industriously plied their mallets to it. At this proceeding, the Great Head began to laugh, thus: "Si-h si-h si-h," for he was pleased to see his brother. When the tumult had subsided, the uncle asked the Great Head to remain, and gave him to eat the blocks which had been prepared for him. Then the two men told the Great Head about the brothers who were lost and about the stranger. Then the Great Head said, "I know where they have gone; they have gone to a place where lives a woman who is a witch and who sings continually."

Now, the Great Head said, "I have been here long enough; I want to go home; this young man is pretty bright, and if he wishes to go to see this witch, I will show him her abode and all the bones of his brothers." The young man consenting, he and the Great Head started on the morrow, and finally came to a place where they heard this song: "Dy-giñ-nyă-de, he″-oñ-we, he′-oñ-we-ni″-ă-h gi-di-oñ-ni-ăh," which the witch was singing. At length she spoke and said "Schis-t-ki-añ"; this was the magical word at which, when heard, all turned to dry bones. Upon hearing this the Great Head said, "I will ask the question, 'How long have you been here?' and the hair will fall from my head and you must replace it, and it will grow fast, and then I will bite her flesh and pull it from her, and as it comes off you must take it from my mouth and throw it off, saying 'Be a fox, a bird, or anything else,' and it will then run off never to return."

They did as they had planned, and when the witch begged for mercy the Great Head said, "You had no mercy; see the dry bones; you must die": and so they killed her, and her flesh was turned into animals, and birds, and fish.

When she had died, the Head said, "Let us burn her to ashes." When this was done, the Head said, "Let us search for the year-old bones and cause them to lie in rows," and they worked together selecting those they thought were bones of the nine brothers, and placed them together. When this was done, the Great Head said, "I am going to my old home in the great mountain, and when I fly over here on a tempest then you say to these bones, 'All arise,' and they all will rise and you may go home with them." Great Head departed, and then arose a storm and a terrific hurricane, and the Great Head out of the wind called to the nine brothers to awake, and they all arose to life, shouting for joy at seeing each other and their youngest brother again.

CUSICK'S STORY OF THE DISPERSION OF THE GREAT HEADS.

An old squaw who resided at Onondaga was alone in her wigwam one evening. While sitting by the fire parching some acorns one of the monstrous heads made its appearance at the door. Thinking that the woman was eating coals of fire, by which these monsters were put to flight, it suddenly disappeared, and none of its kind have been seen since that day.

THE STONE GIANT'S WIFE.

In the olden days the hunters always took their wives with them on their expeditions. It was a wife's duty to fetch home the game that was killed and prepare and cook it.

A great hunter set forth upon a hunting excursion and took his wife with him. He found so much game that finally he built a wigwam and settled down. One day he had gone hunting in one direction while his wife was sent in another to collect the game he had killed the previous day.

When she returned towards home one evening, laden with game, she was surprised at hearing a woman's voice, and as she entered her surprise changed to fear, for she saw a stone giant woman nursing the chief's child. "Do not be afraid," said the giantess; "come in." And as the wife obeyed she told her that she had run away from her cruel husband, who wanted to kill her, and that she wished to stay a while with the hunter's family. She had come from very far, from the land of the Stone Giants, and was very tired, and added that they must be careful what food they gave her. She could not eat raw food, but it must be well cooked, so thoroughly cooked, indeed, that she could not taste the blood, for if she once tasted blood she might wish to kill them and

the child and eat them. She knew that the woman's husband was a mighty hunter, and she knew that his wife brought in the game, but now she would do it instead; then she said that she knew where to find it and would start after it at once.

After a while she returned, bringing in one hand a load which four ordinary men could not have carried. The woman cooked it, and they dined together.

As evening came on the Stone Giantess bade the woman go out and meet her husband and tell him of her visit; so she started, and the hunter was much pleased to hear of the help she had given.

In the morning, after he had gone on his hunting expedition, the giantess said, "Now I have a secret for you: My husband is after me. In three days he will be here. We shall have a terrible fight when he comes, and you and your husband must help me to kill him."

In two days afterwards she said, "Now your husband must remain at home, for mine is coming. But do not be afraid; we shall kill him, only you must help catch and hold him. I will show you where to strike him so that the blow will go right through to his heart." The hunter and his wife were both frightened at this, but she reassured them, and they all three awaited the coming of the giant. So she placed herself in the entrance, and as he came in sight she was ready. She seized him and threw him on the ground. "Now," she said, "strike him on the arms, now on the back of the neck"; and so he was finally killed. Then said she, "I will take him out and bury him," which she did.

She staid a while quietly with the hunter and his wife, fetching in the game and being useful until, they were ready to leave and return to the settlement. Then she said, "Now I must go home to my people, for I need fear nothing." So she bade them farewell.

And this is the end of the story of the Stone Giantess.

THE STONE GIANT'S CHALLENGE.

A Stone Giant challenged a Seneca chief to a race. The challenge was accepted, and the time for the start appointed two days later.

The hunter employed the time in making a pair of moccasins, and in due time the race began. The hunter was in advance; he led the way over cornfields and through bushes, over and around brooks, and went a weary distance until he was very tired and his moccasins were nearly worn off his feet. At last he began to climb rocks. Now, the Stone Giant had no power to raise his head and could not tell where the hunter was when once he was above him, and in this dilemma he had recourse to a charm, and took from his pocket a human finger. He placed it upright upon his hand, and it immediately pointed the way for him to go.

Now, the hunter had turned and seen him do it, so he stooped and snatched the charm from him, whereupon the giant commenced crying and said: "You have won. You have taken my charm, and now you can always find game and all you want, for the finger will direct you to it."

HIAWATHA AND THE IROQUOIS WAMPUM.

In one of his missions into the country of the Mohawks, Hiawatha once came upon the borders of a lake. While deliberating in what manner he should cross it, the whole sky became filled with wild ducks, all of which finally alighted upon the surface of the water. After quenching their thirst and soaking their plumage they ascended again into the air in one great mass, and lo! the lake had become dry, while its bed was filled with shells.

From these the wise chief and counselor proceeded to make the wampum which afterward so firmly cemented the union of the six tribes, thereby forming the great Iroquois Confederacy.

THE FLYING HEAD PUT TO FLIGHT.

CHAPTER II.

PIGMIES.

Another creation of the fertile Indian fancy consists of the race of pigmies, Lilliputian in size, but mighty in skill and deed. They carved out the beauties of rock, cliff, and cave, but also, like Hi-ṇuⁿ, they were endowed with the mightier power of destroying the monster animals which endangered the life of man. Cliff, rock, and grotto attested the skill of that departed race, and the exhumed bones of giant animals bore as perfect witness to the truth of their existence as did the "Homo diluviæ testis" of a century ago to the truth of the story of the deluge.

THE WARRIOR SAVED BY PIGMIES.

It was customary for the Iroquois tribes to make raids upon the Cherokees while the latter inhabited the swamps of Florida.

One of these raiding parties had been away from home about two years, and on the very evening of the journey homeward one of its number was taken quite ill. After a long consultation (the man continuing to grow worse), the party concluded to leave him, and when they had reached one of the rivers of the Alleghany Mountains they abandoned him on the shore. After their arrival at home the warriors were questioned in regard to the missing war-chief. In reply, they said that they did not exactly know what had become of him, and that he must have been lost or killed in the "Southern country."

During the night the sick chief lying on the bank heard the soft sounds of a canoe's approach, and saw three male pigmies landing hurriedly. Finding him, they bade him to lie there until they returned, as they were going to a neighboring "salt-lick" where many strange animals watered, and where they were to watch for some of them to come up out of the earth.

Reaching the place the pigmies found that the animals had not come out from the ground. They hid themselves and soon saw a male buffalo approach. The beast looked around and began to drink, and immediately two buffalo cows arose out of the lick.

The three animals, after quenching their thirst, lay down upon the bank.

The pigmies seeing that the animals were becoming restless and uneasy, concluded wisely to shoot them, and succeeded in killing the two buffalo cows.

They returned to the man and told him that they would care for him.

This they did, and brought him to his friends, who from his story learned that the returned warriors were false, and they were accordingly punished.

From a strong desire to see the "lick," a large party searched for it and found it surrounded with bones of various large animals killed by the pigmies.

THE PIGMIES AND THE GREEDY HUNTERS.

The following story is told as having actually occurred:

Mr. Johnson and others of the Seneca Reservation went out on a hunting expedition to a region quite remote from their homes. Upon their arrival at the hunting grounds they found game so plentiful that they were obliged to throw away large quantities of meat to enable them to preserve and carry the skins of the many animals they had slain.

Several months after their arrival they moved farther into the wilderness, and found, to their sorrow, that game was growing scarcer each day until they could find none. As a consequence of their prodigality they were soon in want of that very meat which they had so wantonly thrown away, and were finally pushed to the verge of starvation.

At length a pigmy appeared to the hapless hunters, and said that their present condition was a just punishment to them for their wastefulness and greed for gain. In despair the hunters inquired of the pigmy what they must do to obtain food. The pigmy said that they must either starve or give up all the skins and furs which they had collected and prepared for use. The hunters asked how long they would be permitted to consider the proposition. The pigmy replied that when they had decided they could call one of his race by simply tapping on a rock, and then they could tell their decision.

Not agreeing upon any answer after a long consultation, they called one of the pigmies to ask for better terms. The hunters said they would rather die than submit, if the amount of food were small, since, with a small supply and being in a strange, unknown country, they could not possibly find their way home. They further asked him to show them their homeward journey. The pigmy said that he could not grant their request without the full concurrence of his race, but that he would give them food enough to satisfy them in their present distress. He then showed them into a capacious and furnished cavern, in which they were to await the answer of the pigmies.

On the following day the pigmy returned and said they had been forgiven for their wastefulness, and that they would be furnished with provisions without parting with their furs. He said that the hunters must remain in the cavern, and that some time in the night they would be called for.

About midnight they were awakened and found themselves in their first camping-ground.

The Senecas were informed that they were brought there by their ever-vigilant pigmy friends.

THE PIGMY'S MISSION.

There was once a pigmy living in a little cave. Near him dwelt a hunter in a wigwam. The pigmy sent to him and bade him visit him. The hunter went accordingly, and saw many wonderful things; the little people themselves in great numbers, and the corn and huckleberries and other berries which they had in plenty to eat. And the pigmy said: "This is our home, and all we have is given to us free, and although I am small I am stronger than you." Then he showed him the games, and the bows and arrows and the dances, even the war dances and the hunter said when he had seen it all, "Let me go." But the pigmy said, "Stay! Do you know my name? I am called Go-Ga-Ah (little fellow). I had my choice of name. I will let you out when I have told you our mission. We are to help you, and we have never injured you, but now we are going to move away from here. We are going where there is more danger from the giant animals, that we may help those who need our aid." Then having finished his speech, he opened the door and let the hunter go on his way.

CHAPTER III.

PRACTICE OF SORCERY.

The early history of the races of mankind, now civilized, is marked in all its course known to us by a belief in mysterious powers and influences. Sorcerers, men believed to be skilled in occult arts, have been known among them all. An examination into the actual practice of sorcery or magical arts among savage and barbaric tribes is therefore of peculiar interest.

In none of the myths of the Iroquois which I have reason to believe antedate the appearance of Europeans do I find anything indicating a belief in Heaven or a separate spiritual world, although some of their customs indicate that they may have had such a notion. The only word for Heaven in the different dialects is evidently a literal translation of the Christian idea, and signifies "in the sky." It would seem that after the possession of that idea came the desire for intermediaries between living men and a spiritual world, indicating the first step toward a higher philosophy.

Among the highly civilized Chaldeans, Egyptians, and Greeks, the success of magic depended upon the ignorance of the masses and the comparative learning of the few who practiced it. Among the Indians the knowledge of the medicine man and the more expert sorceress is little above that of the body of the tribe. Their success depends entirely upon their own belief in being supernaturally gifted, and upon the faith and fear of their followers. I do not believe that the Iroquois lives to-day who is not a believer in sorcery or who would not in the night time quail at seeing a bright light the nature of which he did not understand. The most intelligent, the wisest, and the best Christian whom I ever met among them told me of the wonderful marvels he himself had wrought. He had stayed the flames of a burning church by holding forth his right hand. He had lamed for life a man who was stealing cherries by pointing his finger at him. Few bad Indians came into his presence without begging him not to "bewitch" them. This good Tuscarora ranks as one of the leading Christians of his tribe and lives up to all the moral precepts of the Bible, from which he can quote a text considered by himself to be appropriate for each of the superstitions in which he so firmly believes.

A few Tuscarora names with their definitions will serve to illustrate some of the practices and beliefs of the Iroquois.

Yă-ku-wi-săt: A person possessing within himself a live crystal which he could call from his mouth or nose. The crystal placed in a gourd of water, rendered visible the apparition of a person who had bewitched

another. By applying this crystal to one bewitched, hairs, straws, leaves, pebbles, &c., could be drawn forth.

Rhu^{n}ñ-ta-yä: A medicine man who by the use of a small kettle boiled roots or herbs, and by covering the head with a blanket and holding it over the kettle could see the image of an enemy who had bewitched either some one else or himself.

Yä-tyu^{n}ñ-yû^{n}ñ: One who performed miraculous feats by drawing out with alder tubes, hairs, pieces of skin, leaves, &c., from people who had been bewitched with these things.

Rä-nû^{n}-kwä-terha-yu^{n}-nä-rhi: Superior medicine man.

Us-ku^{n}-rhä-rhih: A carnivorous ghost bodied forth in a skeleton.

U-h nä''-wäk: A departing ghost who will revisit its dead body.

U-t-ku^{n}-terhä''-ks^{n}ñ: An evil spirit, from whom all witches received their power.

U-ht-kû^{n}-sü rhû^{n}: One who could assume a partly animal shape.

Yä-skû^{n}-nû^{n}-nä: The ghost of a living person.

Yä teu^{n}ñ-hu-h-kwä-kwä: An apparition which could emit flames of light.

U-h-t-kû^{n}: A natural-born witch or ghost.

Nä-yû^{n}-h-nä-nyä-rhû^{n}ñ-nyä^{n}-a: A witch under the influence or power of a superior witch.

Stories abound in which these personages or spirits are introduced.

The belief in *Yä-sku^{n}ñ-nu^{n}-nä*, or that the spirit of a person could be in one locality and its body exist at the same time in another, explains much of the phenomena of witchcraft, and accounts for the strange confessions oftentimes made by those who were known to have been unjustly accused.

Many customs still existing show that spirits are supposed to continue to experience the wants of humanity after leaving the body. For some time after the death of an adult his accustomed portion of food is often dealt out for the supposed hungry spirit, and on the death of a nursing child two pieces of cloth are saturated with the mother's milk and placed in the hands of the dead child so that its spirit may not return to haunt the bereaved mother.

When a living nursing child is taken out at night the mother takes a pinch of white ashes and rubs it on the face of the child so that the spirits will not trouble it, because they say that a child still continues to hold intercourse with the spirit world whence it so recently came.

THE ORIGIN OF WITCHES AND WITCH CHARMS.

A great many years ago boys were instructed to go out and hunt birds and other game for the support of their respective families and to learn from practice how to hunt. A certain boy while out hunting

came across a beautiful snake. Taking a great fancy to it, he caught it and cared for it, feeding it on birds, &c., and made a bark bowl in which he kept it. He put fibers, down, and small feathers into the water with the snake, and soon found that these things had become living beings. From this fact he naturally conjectured that the snake was endowed with supernatural powers. He then continued his experiments, and discovered that whatever he put into this water became alive; so he went to another swamp and got other snakes, which he put into the bowl. While experimenting he saw other Indians putting things on their eyes to see sharp, so he rubbed some of this snake-water on his eyes, and climbing a tree he found that he could see things even if they were hidden.

Finding that this snake liquid was powerful enough to improve his sight, he concluded that the more snakes he put into the waters the more powerful would be the liquid. He therefore hung a large number of snakes so that their oil dropped into the water, increasing its power and making more lively its strange inhabitants.

He then learned that by simply putting one of his fingers into the liquid and pointing it at any person that person would immediately become bewitched.

After placing some roots (which were not poisonous) into the snake liquid, he put some of the mixture into his mouth and found that it produced a peculiar sensation. By blowing it from his mouth it would give a great light; by placing some in his eyes he could see in the dark and could go through all kinds of impassable places; he could become like a snake; he could even become invisible, and could travel faster than any other mortal. An arrow dipped into this liquid and shot at any living being, even if it did not hit its object, would nevertheless kill it. A feather dipped into this snake water and then pointed at any wished-for game, would immediately start for the desired thing and would always kill it, and when the game was dissected the feather was always found in it. Having discovered the great power of this snake extract, he took into consideration the finding of counteracting agents. To accomplish this end, he diligently searched for roots and herbs having the required qualities, and finally he was rewarded by obtaining antidotes which would work upon objects which he had bewitched or wounded.

ORIGIN OF THE SENECA MEDICINE.

Nearly two hundred years ago a man went into the woods on a hunting expedition. He was quite alone. He camped out in a field and was wakened in the night by the sound of singing and a noise like the beating of a drum. He could not sleep any more, so he rose and went in the direction of the sound. To his surprise the place had all the ap-

pearance of being inhabited. On the one hand was a hill of corn, on the other a large squash vine with three squashes on it, and three ears of corn grew apart from all the others. He was unable to guess what it meant, but started off on his hunting once more, determined to return some evening, being both curious and uneasy. In the night, as he slept near by, he again heard a noise, and awakening, saw a man looking at him, who said, "Beware! I am after you; what you saw was sacred; you deserve to die." But the people who now gathered around said they would pardon it, and would tell him the secret they possessed: "The great medicine for wounds," said the man who had awakened him, "is squash and corn; come with me and I will teach you."

He led him to the spot where the people were assembled, and there he saw a fire and a laurel bush which looked like iron. The crowds danced around it singing, and rattling gourd-shells, and he begged them to tell him what they did it for.

Then one of them heated a stick and thrust it right through his cheek, and then applied some of the medicine to prove to him how quickly it could heal the wound. Then they did the same to his leg. All the time they sang a tune; they called it the "medicine song," and taught it to him.

Then he turned to go home, and all at once he perceived that they were not human beings, as he had thought, but animals, bears, beavers, and foxes, which all flew off as he looked. They had given him directions to take one stalk of corn and dry the cob and pound it very fine, and to take one squash, cut it up and pound that, and they then showed him how much for a dose. He was to take water from a running spring, and always from up the stream, never down.

He made up the prescription and used it with very great success, and made enough before he died to last over one hundred years.

This was the origin of the great medicine of the Senecas. The people sing over its preparation every time the deer changes his coat, and when it is administered to a patient they sing the medicine song, while they rattle a gourd-shell as accompaniment, and burn tobacco. Burning tobacco is the same as praying. In times of trouble or fear, after a bad dream, or any event which frightens them, they say, "My mother went out and burned tobacco."

The medicine is prepared now with the addition of meat.

A "TRUE" WITCH STORY.

Among the Senecas dwelt an old woman who was very stingy. All at once she began to suffer great pain in her eye. She consulted a conjurer, who went out to a bush and covered it with a tent and then began

to sing, keeping time with his hand. After a while he returned to her and said: "You are bewitched. You refused to give milk to a poor woman who came to beg of you, and she has bewitched you. I have had her house revealed to me, and I saw her, but she was combing her hair over her face, so I could not see her features. I would not recognize her again."

Next day he tried again; then he said: "Now I know who she is." So they sent for a chief and told him all about it, and he brought the woman before them. She was a Chippewa and a witch. The chief had her brought to the old woman's cabin. She owned that she had bewitched her, and said, "Fetch me the thigh-bone of a beaver from a man who is the child of Molly Brant, the child of Governor W. Johnson." The bone was brought, and by the time it arrived she had scoured a brass kettle, and had clean water poured into it. As soon as she received the bone, which was hollow, she placed it against the eye that was not painful and spat through it. After a while she ceased spitting, and looked in the water. A spider was running around in the kettle. She covered it over with her handkerchief, then removed it, and a feather lay there instead of the spider. The pain left the old woman but the sight was not restored.

A CASE OF WITCHCRAFT.

The victim in this case was a Mary Jemison, who, having severe pains in her chest, concluded that she was bewitched, and consulted the witch-doctors, who applied their extractive bandages, which greatly relieved her. She saw a dog as an apparition coming toward her, and directed her friends to shoot it, but they did not succeed in killing it. In like manner a cat, which was invisible to other people, was seen by her. She finally recovered, but Andrew John, who was pronounced her bewitcher, and who was outwitched, is now dying from consumption.

AN INCANTATION TO BRING RAIN.

In a dry season, the horizon being filled with distant thunder-heads, it was customary to burn what is called by the Indians real tobacco as an offering to bring rain.

On occasions of this nature the people were notified by swift-footed heralds that the children, or sons, of Thunder were in the horizon, and that tobacco must be burned in order to get some rain. Every family was supposed to have a private altar upon which its offerings were secretly made; after which said family must repair, bearing its tithe,

to the council-house, where the gathered tithes of tobacco were burned in the council-fire. While the tobacco was burning, the agile and athletic danced the rain-dance.

When this was done, Hi-nûⁿ, pleased with the incense of the burning tobacco, called forth huge dark banks of rain clouds and took personal charge of the gathering storm to guide it to wet the dry and parched earth. Hi-nûⁿ was considered a great lover of tobacco, but always in want of it.

A CURE FOR ALL BODILY INJURIES.

This was made from the dried and pulverized flesh of every known bird, beast, and fish. Equal portions of this flesh were mixed into a compound, which was divided among all true medicine-men.

A WITCH IN THE SHAPE OF A DOG.

Witches could and did assume animal shapes.

On the Buffalo Reservation a man saw a "witch-woman" coming, with fire streaming from her mouth. Crossing a creek and obtaining his gun the man returned and saw a dog at no great distance resting its fore-feet upon a log, and it had fire streaming from its mouth and nostrils.

The man fired at it and saw it fall, but as it was very dark he dared not go near it; but on the following morning he went to the spot and saw where it had fallen, by the marks of blood from its wound. Tracking it by this means he followed its path until it had reached a bridge, where the woman's tracks took the place of the dog's tracks in the path. He followed the bloody trail to the Tonawanda Reservation, where he found the woman. She had died from the effect of the shot.

A MAN WHO ASSUMED THE SHAPE OF A HOG.

On the Tonawanda Reservation three boys were coming down a hill, when they saw a large hog, which they concluded to follow to find its home. As they pursued the hog they continually kicked it, and it retaliated by biting at them at times. It retreated toward the bank of a small creek, reaching which it suddenly disappeared. They saw no reason to suppose that it had drowned itself in the stream; but while searching for it they found on one of the banks an old man, who laughed and said, "What do you seek?" They answered, "A hog."

After some moments the old man said that it was he, himself, whom they had been chasing, and by this the boys knew that he was a witch.

WITCH TRANSFORMATION.

A Canadian Indian says he saw, one evening, on the road, a white bull with fire streaming from its nostrils, which, after it had passed him, he pursued. He had never seen so large a bull, or in fact any white bull, upon the reservation. As it passed in front of a house it was transformed into a man with a large white blanket, who was ever afterward known as a witch.

A SUPERSTITION ABOUT FLIES.

There was once a species of fly so poisonous that sometimes merely the smell of them would eat the nose from a man's face. A certain species of woodpecker was the only thing that could destroy them. Their homes were in trees, on which their poisonous tracks could be traced. They often entered the horns of a deer; hence, the Indian hunter's first move after shooting a deer was to examine its horns, and if they were infected, the hunter would run away, since he knew that the moment the animal died the fatal insect would emerge from the horn.

Around the trees in which they lived deer ever congregated, seemingly bewitched by these fierce and noxious little flies.

Buckskin and deerskin were used to catch them. The bird that killed them for food was colored black and yellow. In the evening it came forth from its home in a hollow tree and scoured the forests for them.

These birds were caught with buckskin traps and their feathers were used as charms, being fastened to the arrows of the hunter. An arrow thus made potent would surely bring down the deer.

CHAPTER IV.

MYTHOLOGIC EXPLANATION OF PHENOMENA.

The instinctive desire in man to fathom the mystery of human life, to solve the enigma of whence he came and whither he goes, and to account for the marvels ever presented to his senses, has in all times excited the imagination and originated speculation.

To explain the phenomena of life and nature the untutored mind has seized upon every analogy suggesting the slightest clew, and imagination has aided the crude reasoning faculties.

In the numerous Iroquois myths relating to the origin of both animate and inanimate objects in nature there appears a reflex of the Indian's mind as he solves, to his entire satisfaction, mysteries, many of which are the "burning questions" of this enlightened age.

These tales only vary with the temperament of the narrator or the exigencies of the locality. Where oft repeated they have in time been recorded on the hearts and minds of the people either as myths or folklore, embodying the fossilized knowledge and ideas of a previous age, misinterpreted, perhaps, by those who have inherited them.

For the ethnologist who would trace in mythology the growth of the human mind, nowhere is the harvest more rich than among the aborigines of our own country; and prominent among these, in this lore of "faded metaphors", are the Iroquois. To what dignity their folklore might have attained had they been left to reach a lettered civilization for themselves we cannot know; but, judging from the history of other peoples, their first chroniclers would have accepted many of these oral traditions as facts.

To many from whom the writer received these myths they were realities, for there remain among these forest children those who still cling to their oft-told tales as the only link binding them to a happier past. Nor should they be considered as idle tales by the civilized man, who has not yet rid himself of the shackles of superstition in a thousand forms, and who sees daily his household gods torn down before him by comparative mythology and its allied sciences. Let him rather accept them reverently as the striving of the infant human mind in its search after the unknowable, revealing that inherent something in man which presupposes the existence of hidden forces, powers, or beings in nature. At first, perhaps, this is a mere blind feeling, but as man develops, it becomes an idea, then a recognized possibility; later, an article of religious faith.

ORIGIN OF THE HUMAN RACE.

The Iroquois legend of an origin of the human race, which includes the creation of the spirits of good and evil, is undoubtedly of modern origin.

In the great past, deep water covered all the earth. The air was filled with birds, and great monsters were in possession of the waters, when a beautiful woman was seen by them falling from the sky. Then huge ducks gathered in council and resolved to meet this wonderful creature and break the force of her fall. So they arose, and, with pinion overlapping pinion, unitedly received the dusky burden. Then the monsters of the deep also gathered in council to decide which should hold this celestial being and protect her from the terrors of the water, but none was able except a giant tortoise, who volunteered to endure this lasting weight upon his back. There she was gently placed, while he, constantly increasing in size, soon became a large island. Twin boys were after a time brought forth by the woman—one the spirit of good, who made all good things, and caused the maize, fruit, and tobacco to grow; the other the spirit of evil, who created the weeds and all vermin. Ever the world was increasing in size, although occasional quakings were felt, caused by the efforts of the monster tortoise to stretch out, or by the contraction of his muscles.

After the lapse of ages from the time of his general creation Ta-rhu^{n}-hiă-wăh-ku^{n}, the Sky Holder, resolved upon a special creation of a race which should surpass all others in beauty, strength, and bravery; so from the bosom of the great island, where they had previously subsisted upon moles, Ta-rhu^{n}-hiă-wăh-ku^{n} brought out the six pairs, which were destined to become the greatest of all people.

The Tuscaroras tell us that the first pair were left near a great river, now called the Mohawk. The second family were directed to make their home by the side of a big stone. Their descendants have been termed the Oneidas. Another pair were left on a high hill, and have ever been called the Onondagas. Thus each pair was left with careful instructions in different parts of what is now known as the State of New York, except the Tuscaroras, who were taken up the Roanoke River into North Carolina, where Ta-rhu^{n}-hiă-wăh-ku^{n} also took up his abode, teaching them many useful arts before his departure. This, say they, accounts for the superiority of the Tuscaroras. But each of the six tribes will tell you that his own was the favored one with whom Sky Holder made his terrestrial home, while the Onondagas claim that their possession of the council fire prove them to have been the chosen people.

Later, as the numerous families became scattered over the State, some lived in localities where the bear was the principal game, and were called from that circumstance the clan of the Bear. Others lived where the beavers were trapped, and they were called the Beaver clan. For similar reasons the Snipe, Deer, Wolf, Tortoise, and Eel clans received their appellations.

FORMATION OF THE TURTLE CLAN.

The Turtle clan originated in a simple and straightforward fashion. There were in early times many tortoises of the kind familiarly known as mud turtles, inhabiting a small lake or pool. During a very hot summer this pool became dry. The turtles thereupon set out on their travels over the country to look for a new habitation. One of them, who was particularly fat, suffered a good deal from this unaccustomed exercise. After a time his shoulders became blistered under his shell from the effect of his exertions in walking, and he, finally, by an extraordinary effort, threw off his shell altogether. The process of transformation and development, thus commenced, went on, and in a short time this fat and lazy turtle became a man, who was the progenitor of the Turtle clan.

HOW THE BEAR LOST HIS TAIL.

The following was recounted to me on the "Six Nations Reserve" in Canada, by Ka-an-er-wah, one of the few surviving grandchildren of Brant, the Mohawk, and might be termed a modern Indian story. It accounts for the tailless condition of the bear.

A cunning fox saw a wagon load of fish and resorted to the following ruse to obtain some of the coveted delicacy: Feigning to be dead, he laid himself in the road by which the fisherman must pass, who, thinking the skin of the fox worth preserving, tossed him into his wagon and drove on. After throwing out several fish, the fox slyly crawled out himself. Soon he met a wolf who was informed of his good luck, and advised to try the same experiment. The fisherman had, in the mean time, discovered the trick, and the wolf received a good thrashing instead of a fish dinner.

The fox next met a bear who was also anxious to procure some fish. "Well," replied the fox, "down at the river you will find an air-hole in the ice; just put your tail down into it as I did and you can draw out the fish as fast as you wish." The bear followed the directions carefully, but, the weather being cold, instead of securing a fish his tail was frozen off.

The bear was very angry and proposed to fight a duel with the fox. The fox chose as his seconds a dog and a cat; the bear chose a hog, and awaited the fox at the appointed hour. As the latter was late in appearing the bear clambered into a tree to prospect, and reported that the fox was approaching with two men armed with guns. Thereupon the hog, greatly frightened, begged to be covered with leaves.

Having accomplished this, the bear returned to his post in the tree.

The fox soon made his appearance, but instead of men his companions proved to be a dog and a lame cat. While awaiting in their turn, the cat, perceiving the slight motion of one of the uncovered ears of the hog, sprang upon it, whereupon the squeals of the invisible pig put the whole company to flight, and the bear never had the satisfaction of avenging the loss of his tail.

ORIGIN OF MEDICINE.

Chief Mt. Pleasant, one of the Bear clan, relates that once on a time a sickly old man, covered with sores, entered an Indian village where over each wigwam was placed the sign of the clan of its possessor; for instance, the beaver skin denoting the Beaver clan, the deer skin the Deer clan. At each of these wigwams the old man applied for food and a night's lodging, but his repulsive appearance rendered him an object of scorn, and the Wolf, the Tortoise, and the Heron had bidden the abject old man to pass on. At length, tired and weary, he arrived at a wigwam where a bear skin betokened the clanship of its owner. This he found inhabited by a kind-hearted woman who immediately refreshed him with food and spread out skins for his bed. Then she was instructed by the old man to go in search of certain herbs, which she prepared according to his directions, and through their efficacy he was soon healed. Then he commanded that she should treasure up this secret. A few days after, he sickened with a fever and again commanded a search for other herbs and was again healed. This being many times repeated he at last told his benefactress that his mission was accomplished, and that she was now endowed with all the secrets for curing disease in all its forms, and that before her wigwam should grow a hemlock tree whose branches should reach high into the air above all others, to signify that the Bear should take precedence of all other clans, and that she and her clan should increase and multiply.

ORIGIN OF WAMPUM.

A man while walking in a forest saw an unusually large bird covered with a heavily clustered coating of wampum. He immediately informed his people and chiefs, whereupon the head chief offered as a prize his beautiful daughter to one who would capture the bird, dead or alive, which apparently had come from another world. Whereupon the warriors, with bows and arrows, went to the "tree of promise," and as each lucky one barely hit the bird it would throw off a large quantity of the coveted coating, which, like the Lernæan hydra's heads, multiplied by

being cropped. At last, when the warriors were despairing of success, a little boy from a neighboring tribe came to satisfy his curiosity by seeing the wonderful bird of which he had heard, but as his people were at war with this tribe he was not permitted by the warriors to try his skill at archery, and was even threatened with death. But the head chief said, "He is a mere boy; let him shoot on equal terms with you who are brave and fearless warriors." His decision being final, the boy, with unequaled skill, brought the coveted bird to the ground.

Having received the daughter of the head chief in marriage, he divided the oh-ko-äh between his own tribe and that into which he had married, and peace was declared between them. Then the boy husband decreed that wampum should be the price of peace and blood, which was adopted by all nations. Hence arose the custom of giving belts of wampum to satisfy violated honor, hospitality, or national privilege.

ORIGIN OF TOBACCO.

A boat filled with medicine men passed near a river bank, where a loud voice had proclaimed to all the inhabitants to remain indoors; but some, disobeying, died immediately. The next day the boat was sought for and found, containing a strange being at each end, both fast asleep. A loud voice was then heard saying that the destroying of these creatures would result in a great blessing to the Indian.

So they were decoyed into a neighboring council-house, where they were put to death and burned, and from their ashes rose the tobacco plant.

ORIGIN OF PLUMAGE.

In the beginning the birds, having been created naked, remained hidden, being ashamed of their nakedness. But at last they assembled in a great council and petitioned the gods to give them some kind of covering. They were told that their coverings were all ready, but were a long way off, and they must either go or send for them. Accordingly, another council was held to induce some bird to go in search of the plumage, but each had some excuse for not going. At last a turkey-buzzard volunteered to go and bring the feathery uniforms. It being a long journey to the place whence he must bring them, he (who had been a clean bird heretofore) was obliged to eat carrion and filth of all kinds; hence his present nature. At length, directed by the gods, he found the coverings, and selfishly appropriated to himself the most beautifully colored one, but finding he could not fly in this, he continued

trying them on until he selected his present suit, in which, although it is the least beautiful of any, he can so gracefully ride through the air. The good turkey-buzzard then returned, bearing the feathery garments, from which each bird chose his present colored suit.

WHY THE CHIPMUNK HAS THE BLACK STRIPE ON HIS BACK.

Once upon a time the porcupine was appointed to be the leader of all the animals. Soon after his appointment he called them all together and presented the question, "Shall we have night all the time and darkness, or daylight with its sunshine?" This was a very important question, and a violent discussion arose, some wishing for daylight and the sun to rule, and others for continual night.

The chipmunk wished for night and day, weeks and months, and night to be separate from the days, so he began singing, "The light will come; we must have light," which he continued to repeat. Meanwhile the bear began singing, "Night is best; we must have darkness."

While the chipmunk was singing, the day began to dawn. Then the other party saw that the chipmunk was prevailing, and were very angry; and their leader, the bear, pursued the chipmunk, who managed to escape uninjured, the huge paw of the bear simply grazing his back as he entered his hole in a hollow tree, leaving its black imprint, which the chipmunk has ever since retained. But night and day have ever continued to alternate.

ORIGIN OF THE CONSTELLATIONS.

Iroquois tradition tells us that the sun and moon existed before the creation of the earth, but the stars had all been mortals or favored animals and birds.

Seven little Indian boys were once accustomed to bring at eve their corn and beans to a little mound, upon the top of which, after their feast, the sweetest of their singers would sit and sing for his mates who danced around the mound. On one occasion they resolved on a more sumptuous feast, and each was to contribute towards a savory soup. But the parents refused them the needed supplies, and they met for a feastless dance. Their heads and hearts grew lighter as they flew around the mound, until suddenly the whole company whirled off into the air. The inconsolable parents called in vain for them to return, but it was too late. Higher and higher they arose, whirling around their singer, until, transformed into bright stars, they took their places in the firmament, where, as the Pleiades, they are dancing still, the brightness of

the singer having been dimmed, however, on account of his desire to return to earth.

A party of hunters were once in pursuit of a bear, when they were attacked by a monster stone giant, and all but three destroyed. The three together, with the bear, were carried by invisible spirits up into the sky, where the bear can still be seen, pursued by the first hunter with his bow, the second with the kettle, and the third, who, farther behind, is gathering sticks. Only in fall do the arrows of the hunters pierce the bear, when his dripping blood tinges the autumn foliage Then for a time he is invisible, but afterwards reappears.

An old man, despised and rejected by his people, took his bundle and staff and went up into a high mountain, where he began singing the death chant. Those below, who were watching him, saw him slowly rise into the air, his chant ever growing fainter and fainter, until it finally ceased as he took his place in the heavens, where his stooping figure, staff, and bundle have ever since been visible, and are pointed out as Nă-gê-tci (the old man).

An old woman, gifted with the power of divination, was unhappy because she could not also foretell when the world would come to an end. For this she was transported to the moon, where to this day she is clearly to be seen weaving a forehead-strap. Once a month she stirs the boiling kettle of hominy before her, during which occupation the cat, ever by her side, unravels her net, and so she must continue until the end of time, for never until then will her work be finished.

As the pole star was ever the Indian's guide, so the northern lights were ever to him the indication of coming events. Were they white, frosty weather would follow; if yellow, disease and pestilence; while red predicted war and bloodshed: and a mottled sky in the springtime was ever the harbinger of a good corn season.

THE POLE STAR.

A large party of Indians, while moving in search of new hunting grounds, wandered on for many moons, finding but little game. At last they arrived at the banks of a great river, entirely unknown to them, where they had to stop, not having the material to build boats. Lost and nearly famished with hunger, the head chief was taken very ill, and it was decided to hold a council to devise means for returning to their old homes. During the dance, and while the tobacco was burning, a little being like a child came up, saying she was sent to be their guide. Accordingly they broke up their camp and started with her that night. Preceding them, with only a gi-wăh, or small war-club, she led them on until daylight and then commanded them to rest while she prepared their food. This they did, and when awakened by her they found a

great feast in readiness for them. Then she bade them farewell, with the assurance of returning to them again in the evening.

True to her word, at evening she reappeared, bringing with her a skin jug, from which she poured out some liquid into a horn cup, and bade them each to taste of it. At first they feared to do so, but at last yielding they began to feel very strong. She then informed them that they had a long journey to make that night. Again they followed her, and in the early morn arrived at a great plain, where she bade them rest again for the day, with the exception of a few warriors who were to be shown where they could fine plenty of game. Two of the warriors had accompanied her but a short distance when they encountered a herd of deer, of which she bade them kill all they wished in her absence, and then, again promising to return at night, she took leave of them. At night-fall she returned, saying her own chief would soon follow her to explain to them how they could reach their own homes in safety. In a short time he arrived, with a great number of his race, and immediately all held council together and informed the Indians that they were now in the territory of the pigmies, who would teach them a sign, already in the sky, which would be to them a sure guide whenever they were lost; and the pigmies pointed out the pole star and told them that in the north, where the sun never goes, while other stars moved about, this particular star should stand still, as the Indian's guide in his wanderings, and that they were then but to follow its light and they would soon return to their tribe, where they would find plenty of game, &c.

Then they thanked the good pigmies, and traveled every night until they arrived safely in their homes, where, when they had recounted all their adventures, the head chief called a meeting of all the tribes and said they ought to give this star a name. So they called it ti-yn-sõu-dă-go-êrr (the star which never moves), by which name it is called unto this day.

CHAPTER V.

TALES.

Distinct from the myths, which relate to the gods, supernatural beings, and natural phenomena, are the tales, from which must be gleaned hints regarding the past hunter, warrior, and family life and history of the Iroquois.

In time of peace, during the long winter evenings, among his group of friends, the returned hunter narrated his achievements, or some famous story-teller told of those days in the past when men and animals could transform themselves at will and hold converse with one another. If musical, the entertainer would relate ingenious fables, with songs introduced, to give zest to the narration.

All these historical traditions, legends of war and hunting, fairy tales, and fables have been handed down through the ages, kindling the enthusiasm of the marvel-loving listener.

These story-tellers were gifted with such imaginative powers, and were so free from the trammels of adapting their tales to any standard of possibility, that no easy task lies before the careful student who seeks to detect in them the scaffolding of truth around which so elaborate a superstructure has been reared.

BOY RESCUED BY A BEAR.

From their close relations with wild animals Indians' stories of transformations of men into beasts and beasts into men are numerous and interesting. In nearly all of these, wherever the bear is introduced he figures as a pattern of benevolence, while many other animals, such as the porcupine, are always presented as noxious. One of these bear stories, as told me on the Cattaraugus Reservation by a grandson of Cornplanter, was as follows: A party of hunters, who were encamped a long distance from home, discovered, as they were preparing to return, that a young boy of their company was missing. After searching vainly for several days they concluded that he had been killed, and sadly departed without him. They were no sooner gone, however, than the lost child, in an almost famishing condition, was discovered by a very kind-hearted bear, who reasoned thus: "If I attempt to relieve the child in my present form, he will surely be frightened to death. I will therefore transform myself into a woman and take the boy home with me to become a playmate for my little cubs." The boy was accordingly rescued from starvation, and, living in the same hollow tree with the bear family, fed

with them upon nuts, corn, and berries. But when fall came, and with it the return of the hunters, the good bear explained her device to the boy, saying: "My cubs must now take care of themselves, and you can rejoin your friends; but always feel kindly toward the bear tribe"; upon which she resumed her proper shape and disappeared into the woods. The boy never, even when grown, was known to kill a bear.

INFANT NURSED BY BEARS.

A man and his wife and child went off hunting from an Indian village and encamped a long way from home. At first, good luck attended the hunter, who brought into camp plenty of deer and other game. At last, game became scarce, and day after day the hunter returned empty-handed and famishing with hunger. Before leaving, the hunter resolved to try his luck once more. Soon after he had left the camp his wife, in searching for roots, found a hole in a large tree in which was a black bear. This she succeeded in killing, and after cutting it up and cooking some for herself and child she carefully secreted the remainder from her husband. But the boy hid a piece for his father, who soon returned, very weary. Then the hunter was enraged at the conduct of his wife, whom he forced to eat of the meat until she died, with her little infant to which she had given birth the same hour.

Then the hunter buried his wife and threw the infant into the hollow tree. After this the hunter had better luck, and continued to live in the same place with his little boy. In the course of time he found that his little son must have had company, for little foot-prints were to be seen around his wigwam. So he left a second small bow and arrow, which, in time, he found had been used, and his son told him that a small boy had been playing with him. The next day the father watched and saw a little boy leave the tree where he had placed what he supposed to be the dead child. Then he entered his home and said to the child, "You are my child"; but the boy could not understand him, and was frightened and uneasy, and ran away to the tree, where the hunter discovered he had been nourished and cared for by a friendly bear. The hunter would not kill the kind benefactor, but took some of the soft bed of dried bark, to which the child had been accustomed, to his home, whereupon the child was happy and contented to remain with his father and brother.

In time the two excelled in hunting and brought home owls and strange birds. Finally, they told their father they were going to the far west to kill the great beasts which were harming the human race. The hunter, who perceived that the children were becoming very strange, was afraid of them and consented. Then they bade him go back to his native home and get three of the bravest warriors to follow them to the west, where the warriors would find the carcasses of the animals

which they would kill. So he went home and told his story, and the warriors started out and finally found traces of the boys, and in time found the carcasses of the animals almost reduced to bones. Two of the men died of the stench.

THE MAN AND HIS STEP-SON.

This tale was narrated by a granddaughter of Brant.

A certain man had a step-son whom he hated. He devised all means of getting rid of him. At last an idea struck him. He went out hunting very often, and one day he saw a porcupine's hole. "The very thing," said he. When he came home he called his step-son. "See here," said he, "I have found a porcupine's nest. I want you to creep into the hole and catch some of the young ones. Come, crawl in." The boy obeyed, and as soon as his heels were in, the step-father closed up the hole and made him a prisoner.

When he had found himself betrayed he cried and cried till he cried himself asleep. When he awakened he found that he was in a room. He saw an old woman walking around. She brought him something to eat, but it was so bitter that he refused. Then she called many animals around her to a council—wolves, bears, foxes, and deer. She told them that there was a boy there who could not eat the food that she lived on, and asked what they would advise to give which might support a human being? The fox said, "I live on geese and fowls. I'll take him, but still he can't eat raw food."

The council decided that it was useless for him to assume the charge.

Then the deer and each animal in turn told what they lived upon, but none could offer proper food for a lad.

Last of all the bear spoke. "I live," said he, "on nuts, and he can live with my young ones." So this was agreed to. All the animals promised to assist in getting the nuts, and the boy was given over to the keeping of the bear. He kept him for several years. One day the bear said, "A hunter is coming; he means to chop down the tree."

True enough, next day a dog ran barking up, and the tree was cut down and the old bear and two cubs were killed.

The hunter thought there might be still another cub, so he looked into the tree. The boy made a noise just like the cubs. The hunter caught him, and was so astonished at his appearance that, instead of killing him, he took him to his wigwam, tamed him, and taught him to speak and to grow up like a man. After some years he forgot he had lived like a bear. He married a daughter of the hunter, but his mother-in-law was always angry because he never brought home tender bear-meat. So at last he went hunting and killed a bear, but on his return home he fell on a sharp stick and was instantly killed.

THE BOY AND HIS GRANDMOTHER.

An old woman lived with her grandson in the wilderness. The boy amused himself by shooting with his bow and arrows, and was very happy. His grandmother cooked and cleaned. She talked much to him of the future and the time when he should go out into the world. "Never, my grandson," she would say, "never go west—go always to the east." And the boy wondered very much at this, because, he said, all other boys went west, and they found much game there. But he promised.

However, one day he asked his grandmother so often why she always forbade him to go west, that she told him: "Far away in the west," said she, "there lives one who waits to destroy us, and if he sees you he will injure you and me. I warn you do not go that way." But the boy questioned how and why, and thought to himself that on the first opportunity he would see for himself. So he struck out for the west, keeping a sharp lookout for the man, because his grandmother had taught him he should always bow first.

As he neared the lake he heard the man's voice, but, although he looked all around, he could see no one. The voice said: "Ah! ah! my little fellow, I see you." Still he could see no one. "What shall I do now?" thought he. Then the voice said, "What would you think if I sent a hurricane to tear your grandmother's cabin all up?" The boy replied, "Oh, I should like it. We have hard work to get wood. It would be a good thing." And the voice replied, "You had better run home and see." So he went home to his grandmother. As he neared his cabin he heard a great noise, and his grandmother called to him, "Come in, come in; we shall be blown away. You have disobeyed me; now we shall be destroyed. The hurricane is upon us." But the boy only laughed and said, "We will throw the house into a rock." And he turned it into a rock, and when the hurricane was over they were unharmed, and found plenty of wood to burn.

Then said the boy, "Grandmother, we are all right." But the old woman said, "Do not venture any more; next time he will destroy us." But the lad thought he would try again. In the morning he started off east as long as his grandmother could see him, then he turned to the west, and kept a sharp watch right and left as he neared the pond.

Then, all at once, he heard the man's voice again. "What," it asked, "would you say if a great hailstorm came down upon your mother's cabin, with spears as sharp as needles?" "Oh," replied the youngster, "I have always wanted some spears; I would be glad of some." "You had better go home and see," said the voice. So home he sped, hearing the gathering of a great storm.

The grandmother said, "We are going to be destroyed with a hailstorm of spears." But he laughed aloud and said, "I need spears for fishing; let them come. We will turn the house into a rock again."

And he did, and when the storm was ended he and his grandmother came out and the ground was covered with spears. "No matter," said he; "I will get poles and fit them on for fishing"; but when he brought the pole he could not find any spears. "How is this?" he asked. And his grandmother said, "They are melted—they were ice."

The boy was very much disappointed and mourned aloud. "What can I do to punish the old fellow?" he cried. "Heed my warning," said his grandmother, "and leave him alone."

But the lad was determined. He started off once more, taking with him a stone round his neck as a charm. He watched the direction in which he had heard the voice, and all at once he saw in the middle of the lake a great head, with a face on every side of it. He cried out, "Ha! ha! uncle, I have you now. How should you like it if the lake dried up?" "That it will never do," said the voice. "Go home," mocked the lad, "and see!" And he threw the stone which he had. As it whirled through the air it became very large and fell into the lake, when, at once, the water began to boil.

Then the boy returned to his grandmother's cabin and told her all about it. She said, "It has been tried again and again, but no one has ever seen him before or has been able to hunt him."

Next morning he went over to the lake and found it all dried up and all the animals dead, and only a large frog remained, into which the man had been turned. So the boy killed the frog, and no more trouble ever came to him or his grandmother.

THE DEAD HUNTER.

A man and his wife went hunting, and after a hard day's march they came to an empty wigwam. So they entered and found in it a dead man, laid out with his tomakawk and all his fine things. They found corn in plenty, and the squaw made bread, and then they all went to bed, the man on one side and the woman and her baby on the other. They placed some of the bread between them, and in the middle of the night they heard a noise, and the dead man was sitting up and eating. The hunter sprang up. "We are all dead folks," cried he, "if we remain here"; so he made a pretense, and whispered to the squaw, "You must go for water. I will mind the child." As soon as she was gone, he pinched the baby till it cried. "Oh," said he, "I must follow the mother or the child will die; she is too long fetching the water." He hastened and soon caught up with the woman, but behind him came the dead man, holding a lighted torch. To save themselves they put the child down on the ground, and the hunter seized his wife's hand and hurried her on faster and faster, but the sound of steps behind them was plainer and plainer. So the man let his wife go, and fled on by himself as hard as he could. Soon he came to a hollow log, into

which he crept. The steps came nearer and nearer, until at last he felt the strokes of the dead man's hatchet, and heard the dead man's voice saying, "Ah! you are here. I have caught you." Then the dead man took a pole and tried to poke the hunter out of the hollow, but he could not. At last his hatchet broke, and then the hunter heard him say, "I must go; my night is coming on." So, after a while, the hunter crept out of the hollow log and went after his wife and child, and returned to the settlement and told all about it; and the chief sent and burnt up the dead man's wigwam until it was nothing but ashes.

A HUNTER'S ADVENTURES.

This was told by Mr. Snow, Seneca Reservation:

A hunter far from home had expended all of his arrows, when he arrived at a lake. He saw a great number of wild geese. Having been unsuccessful, he now reflected upon the best means of capturing some of these geese, and he finally concluded to pursue the following plan: He procured a quantity of second-growth bass-wood bark, which he tore into withes. These he fastened to his belt, then, swimming out into the lake, he dove down under the floating flock and succeeded in tying a few of the geese to his belt, whereupon the struggling geese, with their companions, flew up into the air, carrying the hunter with them. While unfastening a few of the tied ones, so that he might be let down to the ground in a gradual manner, the whole of the captured ones broke away, and the poor hunter fell into a tall and hollow stump, from which he found it impossible to free himself.

He remained in this miserable prison nearly two days, when he with joy heard a thumping sound upon the outside of the stump, and also the voices of women choppers, who were cutting down the stump for wood, but the cries of the man on the inside of the stump frightened the women so much that they went away in search of aid to secure the game which they supposed they had found in the stump.

The hunter was finally delivered safely from his perilous situation, and he remained with his kind rescuers until he had again provided himself with a large stock of arrows, when he started anew for a hunt farther to the south. Having arrived at his destination, he built a lodge and had excellent luck in killing large numbers of deer, bears, and other game, the oil of which he carefully preserved in leathern bottles. When he concluded to return to his home and friends he remembered his experience in flying, so he prepared wings for himself, which wings he made from thinly-dressed deer-skin. Taking his bottles of oil for ballast, he started homeward, but as he passed over the lodges of the good women who had rescued him, he threw down several bottles to these his good friends, who to this day do not know from whence they came. After

this the flying hunter flew swiftly and safely to his home. His return to his clan was announced by runners, and all assembled to listen to the hunter's narration of his exploits and adventures.

THE OLD MAN'S LESSONS TO HIS NEPHEW.

A man and his nephew lived together in a solitary place. The old man one day said to his nephew, "You are now a young man. You should be hunting larger game—a bear or a deer—for our support." And he replied, "I will go." Then the old man gave him the best bow and arrows, and in the morning he departed. When he returned home he brought that which he had killed—a deer—and thought himself lucky for a first attempt. "I should like," he said to his uncle, "to go every day." Then the old man said, "Now and again you may see a bear go up a tree; if you see a hole in the tree and the marks of the bear's claws you can be sure of the bear."

So one day as the young man was out he saw a hole in a tree, and he saw the claw marks of the bear, showing that he had gone up, so he returned and told his uncle, and in the morning they started together. The old man said, "I believe there is a bear inside now. Our plan is to knock around the outside of the tree and make the bear uneasy; presently he will come out." So they knocked, and the first thing they knew the bear was sticking his head out of the hole. "Now," said the uncle, "I will tell you when to shoot. If you will shoot just where there is no hair, you will surely kill him." The young man saw that the paws were without hair and he hit the bear on the fore-paw. "Shoot again," said the uncle. So he shot the other paw. Then the old man pointed and said, "Shoot here." And the nephew aimed and shot the point of his uncle's finger. Then the old man's hand hurt him, so to direct his nephew he pursed out his lips and pointed with them, and the young man shot through his lips. Then the bear came down and made his way off, while the uncle was explaining that his meaning had been to shoot under the fore legs. The young man asked, "Why did you not say so?" Then they started home for that day without game. "To-morrow morning," said the uncle, "watch, for if you will look between the roots of the large trees you may find a bear in that way."

Accordingly, the next day the young man found a hole near the root of the tree and saw a large bear inside. So he went home and asked his uncle for instructions how to get at the bear. The old man began to explain, but, unfortunately, in a way that he could not understand. He went into the corn field, gathered the corn-stalks and stuck them around the entrance to the hole, so that he surrounded the place where the bear must come out. Then he knocked on the other side of the tree,

and the bear came out, as, of course, there was no reason why he should not, for the stalks fell before him. The young man took his arms and went home. Then the uncle asked what he had done, and he told. "You did not understand," said the old man. "You should have shot him as he left the den; first on one side then on the other." "After this," expostulated the young man, "make your explanations clearer and do not give so many illustrations. Had you told me this at first all would have been right."

One day the old man said, "I'm going to make a feast. You can invite the guests. I cut sticks to represent so many friends. You invite them. Go to the highest tree you can find and leave this stick there. Then go along till you find a place all swamp—bad place, and leave one stick there," &c.

So the nephew went around and used up the sticks and returned. "Have you done as I said?" asked the old man. "Yes," said he. Yet when the day came and the feast was ready, nobody came. "Why," asked the uncle, "has nobody come?" "How," inquired the young man, "could the tall tree and the swamp come here?" So they ate together, and then the young fellow went off in the world to learn his lessons by experience, for he had become tired of his uncle's parables.

THE HUNTER AND HIS FAITHLESS WIFE.

Once on a time there was a man whose name was "Hemlock Bows." He used to go hunting every day and always had good luck. He would kill so many deer that he could not carry them all home. One day he killed thirty deer. He was determined to carry them all home, so he took them and shook them, and shook, and shook, till they were as small as squirrels, and he carried them all home, and when he got there he shook, and shook, and shook, till they were good-sized deer again. Sometimes when he killed so many he would sit up all night to fix the skins on his wigwam so he could make clothes for himself and his children. One day a boy was born unto him; the father was very fond of him and he planted a few hills of corn and beans, but they lived mostly on meat. After the child was born the mother slept alone with it on the other side of the fire-place.

After three years more a little girl was born. After the birth of her second child the wife seemed to care no more for her husband. He was a great worker. He had a large boxful of skins all dressed for his children.

When the father went hunting the mother would call the boy and make him go and bring her some water, and she would wash and dress up very fine and take a long strap and an ax and leave the children alone all day until almost time for the father to come home. Then she would hurry home to cook for the man.

One night the little boy told his father all about his mother going away every day. He felt very badly when he heard it, and at once resolved to follow her the next day and find where she went. The next morning early he left the cabin and went off. The woman soon sent the boy for some water, and, after she had dressed, started with her ax and the long strap which was used in drawing wood. She passed her husband on her way but did not see him, but he tracked her very closely. Soon she came to a large black-ash tree, which was hollow, and upon which she pounded with her ax. A very nice-looking man came out of the tree to meet her. He wore a turban filled with bright feathers. He went up to her and kissed her, and seemed very much delighted to see her. Her husband was watching them all the time, and when the man kissed her he drew his bow and arrow and shot at the man, and the arrow went between him and the woman. She was very angry, and took a club and beat her husband till he could not see. Then she went home, put the boy and girl out in the cold and snow, and then set fire to the cabin and burned it down and went off.

Soon the father came and found the children. He felt very badly when he saw them, but he told the boy he must mind the dog, for he must go after their mother. The dog fixed the boy and girl in a house in the snow, and the next day they started on a long walk. While the boy was traveling along with his little sister on his back she saw a flock of large white turkeys, and she wanted one. The boy put her down and ran in the bushes to find one for the little girl, but while he was after it a bear came and carried off the little girl, and the dog followed after the bear. The boy felt very bad. He cried and cried, and wished that he might die. He tried to hang himself, but the strap broke. Then he jumped down a steep place onto a lot of stones, but still he was unhurt. He traveled on and soon came to a lake. He plunged into the water, but it was very shallow. He walked a little way, when he saw a great fish coming towards him with its great mouth wide open. Now, not far from this lake lived a woman and her daughter. They had fences of osier fixed in the lake to catch fish. In the morning the girl went out to see if there were any fish caught, and she saw a very large one. They killed and dressed it, and when they cut it up there they found the boy alive. They were very glad to find the boy, and soon he told them all about himself and family.

Some time after this they heard that the boy's mother was going to be married to another man. The woman told the boy she thought he had better go and kill the man and his mother. So they fixed him up and he went and found them. There was a number of cabins and between two of them was a long stick put up, and on it was an eagle, and the one that shot the eagle was to marry the woman. She was very nicely dressed and sat on a raised platform. He saw his father near her, looking very sick and sad. The boy went around among the wigwams, and in one he found his sister hanging to a crane in a chimney and near her the dog. He got his father, sister, and dog away, and then went back

and set fire to the cabin his mother was in. It burned so fast that she could not get out and she died. When her head cracked open it shook the ground, and out of the ashes of his mother there rose up a screech owl. His father got well, and they all went to live with the woman and her daughter. The old man married the woman, and the boy the daughter, and so they were happy at last.

THE CHARMED SUIT.

An old man brought up his son very quietly in a solitary place. As he grew up, his father sent him daily into the woods and told him to listen and come home and tell what he had heard. So the boy sat on a log and waited to hear what might come. He heard a sound at last, "Ch-R-Ch," so he ran to tell the old man and then thought he would wait till he heard it again. The Ch-R-Ch was repeated, and he ran to his home and cried out, "I have heard it! I have heard it!" "Wait! wait!" said the old man, "till I get my pipe," and when he had lifted it he said, "Now, what did you hear?" "Oh," replied the lad, "I heard Ch-R-Ch; twice it was repeated." "That," said the father "is not what I wanted you to hear; that was only a snow-bird."

So the boy went, morning after morning, and heard various sounds from snow-birds, wolves, owls, &c., but still never what the old man expected. One day whilst he was listening he heard quite a new sound and as the sun began to rise, it was like a voice singing. "That is strange" said he, "I never heard that before." The song was like this:

Hă-hûm-weh
Hă-hûm-weh
Wă-he-dŭm-nä
Srû-guă he.
Hă hûm weh
Hă hûm weh.

Which means:

I belong to the wolf clan.
I belong to the wolf clan.
I am going to marry him,
I am going to marry him.

It was a sweet woman's voice. So the boy listened and said to himself, "Surely this is the song." So he shouted for glee, and ran and fell near the door, he was so excited. "Now," he cried, "I bring the news"; but the father said, "Wait! wait! till I get my pipe." "Now," said he, as he smoked, "tell me." So the boy began. "As I listened," said he, "I heard a voice from the west, a woman's voice, so I turned and listened to it singing":

Hă-hûm-weh
Wă-he-dûm-nä
Srû-guă-hi.

"Ah!" said the father, "that was what I was waiting for. The chief of a distant village sends his two daughters to see us. Run half way back and see if you can hear them again." So he went and heard again the same song.

Hă-hûm-weh, &c.

He returned at once and told his uncle. "Now," said the old man, "they are almost here. Sit down by the ashes." And he took the shovel and threw ashes all over the boy's bed and put on him his best feathers and astonished the boy very much by saying, "Do not look at the maidens when they come in; they come to see me, not you; hold your head down while they stay."

Then they heard the song:

Hă-hûm-weh.
Hă-hûm-weh.
Srû-guă-he.

The feathers were all on his head; still the old man repeated, "Now, keep still."

Soon the maidens arrived and the old man opened the door. The younger of the two carried a beautiful basket on her back; this she set down near the old man. The boy looked around a little, and his father called out, "Dirty boy; hold your head down." The visitors looked around and thought, "What a place! what a place!" "Sit down, sit down," said the old man to the visitors, but although they removed the blankets they stood still. So he smoked on quietly.

When they saw how dirty it was where the boy sat they began to go around and clear up, and as the evening passed the lad did not know what to do with himself. They fixed themselves a clean bed on the other side of the wigwam. They refused to sit by the old man, and when at last the boy went to sleep they lifted him out of his dirty bed, strewn with ashes, and put him into their clean bed.

In the morning the younger one admired him and said, "What a beautiful young man!" Then they said, "We had better cook something." So they cooked corn and rice, and the boy ate with them, and the old father smoked. After a while he said, "Good woman; can clean up, can cook, can make good wife." Then he let the boy look up. The younger visitor sang again:

Hă-hûm-weh.
Hă-hûm-weh.

So the old man smoked his pipe and the sisters went back to their people. Then the two lived quietly together, but the young man often thought of the beautiful maidens.

One day as they were conversing the old man said, "Now you have become a young man you must go." "Which way," asked he, and the uncle replied, "You must go where those young maidens are who are chief's daughters. You must have fine bows and arrows; here they are—try them before you go. They give luck in hunting." Then he looked where he kept all the fine things for the young warriors and dressed

him up well with a swan stuffed. "Now," said he, "when you take this outside it will be on your head, but it will soon come back to life, and when that happens you must run in a circle and return, and you will see that many deer and bears will follow your track." So off he went. When he returned he said that so many bears and so many deer came out every time as he crossed the track and he shot them, and took the best out and sent them home to show them to the old man. And all the time the swan was alive and beautiful.

The old man exclaimed at his luck as he told his tale. "You have done well," said his uncle. "We must save all the meat. Now, hold yourself ready to go to-morrow. I warn you there are dangers in your path. There is a stream that you must cross. There stands a man and he will try to kill you. He will call out to you that he has a couple of wild cats and will say, 'My friend, come, help me kill these.' Pay no attention; go right on along, or you will be in danger and never get to the town." The nephew promised to obey, and his uncle brought out a curious thing, made of colored string and elk hair of deep red, about a foot long. "I shall keep this by me," said he, "and so long as you are doing well it will hang as it is; but if you are in danger it will come down itself almost to the ground, and if it does reach the ground you will die." "I will be careful," said the young man, and so he started with his directions, following his uncle's advice. He had almost reached his destination when he heard a noise, and there in his path stood a man while he watched two animals going up a tree, and he tried in vain to make them come down. As the young man approached him he said, "Please help me, if you can; but kill one of these animals; it will be a good thing. Do help me." So he begged, and the young man thought it could do no harm, so he took out his arrow and said, "Don't be in a hurry." Then the old man handed him the arrows and asked him, "Where are you going?" and he told him; and the stranger said, "Stop all night with me; that is a long way you are going; go on to-morrow."

Now the uncle at home was watching the signal. He saw it go down almost to the ground, and he cried out in his alarm, "Oh! oh! my nephew is in danger, he will get into trouble with that old man." But the young man listened to the persuasions of the tempter and agreed to remain with him all night, and the old man made up a fire and began to tell stories as they sat beside it till the youth fell asleep. Before they sat down he had gathered together some sharp prickly bark, pretending it gave a good light, and as the young man slept he said to himself, "Now, I can fix him." So he took some of the sharp-pointed bark and placed it on him; so he writhed in agony. Then he took off the young man's handsome clothes and dressed him up instead in his own old rags, dirty and rotten. "I shall keep these things," said he; "they are mine," and forthwith he started off to the chief's house where the beautiful women were, and he had the young man's pipe and his spotted deer skin, and the handsome bag made out of it, with little birds to

light the pipe. When he reached the chief's cabin he went in and the younger sister was there. She was so disappointed when she saw him, she said, "This cannot be the young man." But her elder sister said: "Yes, it is he. He has the fine clothes and the deer skin, and the deer-skin bag, and the little birds to light his pipe." But still the younger sister was disappointed, and then the people heard that the young man they expected had come from the east and many came to see him and watched all his movements. At length he got his pipe, which, when it was filled, the two little birds were expected to light, but they would not for a stranger, so he said it was because there were people all around, and he must be alone. The older sister believed him. Then he told her, too: "When I spit it makes wampum, so spread out a deer skin and save my spittle." So he spat many times and she did as he said and saved it up, but it never became wampum, although he did it every night. Each day he went hunting, but he killed only things not good to eat, and made the older sister, who became his wife, cook them. The younger one, however, would never go near him. Even when he commanded the little spotted deer-skin bag to stand up she observed that it did not obey him.

One day she went out to the fields to husk corn, and as she finished her task she observed a man near a fire in the field. She drew near. He was fast asleep. She gazed at his face and recognized the beautiful young man, but how greatly changed! She stood for a while looking at him till he awakened. "Who are you?" she asked; "whence do you come? where are you going?" "I come," said he, "from the far east; I came only last evening." And he related his story, and told how nicely he had been started by his uncle, until she was quite satisfied of the truth of his story. She did not tell him she was the daughter of the chief whom he sought, but she went home and fetched food for him. She laid meat and drink before him, and while he ate she returned to her task of husking corn. Then she went home. The old fellow meanwhile had asked often, "Where is the young sister? Why does she never come to see me, or sit near whilst I smoke my pipe? May be she has found for herself a sickly man out in the field."

At last the younger sister told the young man who she was, and that the old man that had robbed him was in the chief's cabin and had all his fine things; and the young man felt better, and said, "I want my things back. I will make a dream. Go and tell the chief, your father, that I have dreamed a dream and all the people must come to hear it, and I will tell how all the things the old man has are mine, and then the birds will obey, and all the things will come alive again."

Then the old chief listened to the entreaties of his youngest daughter, and called a great council and the young man told his story in the form of a dream, and when he spoke of the birds they came and filled his pipe, and the swan skin when placed upon his head also came to life, and his spittle became wampum. So the chief knew he was the

rightful owner of the clothes and they were returned to him, and the impostor was obliged to resume his old rags. The young man was then married to the faithful maiden, and returned to his home in safety, where he became in time a noted chief.

THE BOY AND THE CORN.

An old man brought up his nephew in a solitary place. One day as they walked through the field the uncle picked an ear of corn, but he did not eat it. "Strange," thought the boy, "that I never see him eating anything;" and he watched him when the old man thought he was asleep. He saw him go to a hole and take out a kettle and a few grains of corn, which he put into it. Then he took a magic wand and tapped the kettle till it grew big; then he ate some corn and again tapped the kettle till it became small once more.

In the morning when the uncle left home the boy got at the hole and did as he had seen him do, but as he tapped the kettle it grew so large that he could not stop it, and it went on growing until his uncle came home, who was very angry. "You do not know what harm you have been doing," said he; "we can get no more corn; it grows in a place that is so dangerous that few who go there come back alive." "We have plenty in the house," said the boy. "And when it is gone, what then?" But the boy persisted that he knew where the corn grew, and could easily fetch some. "So, uncle," he added, "tell me how to proceed." "I shall never see you again," moaned the uncle. "Oh, yes, you will," said the boy, and he started. Now, the uncle had warned him that he would come to a lake where the woman witches lived, and that he never could escape them. But he made himself a canoe and picked some peculiar nuts and launched himself upon the water. Then he threw the nuts before him to feed the fowls who guarded the shore, that they might not betray his coming. He landed on the other side safely and filled his pockets with corn, and was hastening to put off in his boat, but before he did so was curious to know what was in a lodge on the shore. So he peeped in and stole a bear's leg which he saw.

Now, all his nuts were gone; so when he passed the birds they were alarmed and set up their call and out came the witches with their hooks and cords. But he launched his canoe, and when a hook reached him he broke it off, and reached the opposite shore in safety. There he saw a number of ducks, and he stripped a tree of its bark and caught them and started home. As he neared his home he heard his uncle singing a dirge—"My poor nephew, I shall never see him again." The animals had been telling the old man sad tales of his death, so when the boy knocked at the door he did not believe that it was his nephew. But the boy heard the Hi-Wadi, and he knew his uncle. So he said, "Uncle,

I am coming, I am coming; stop your mourning." His uncle thought it was an animal on the outside, and he called out, "Put your hand through the hole." So the nephew put his hand through and caught hold of the rope and pulled it out and tied it to a post, and then opened the door. And when the old man saw his nephew he called out, "So you have got home safe; where have you been?" and he made many inquiries. And the young man explained everything to him, and told how, at last, he had returned safely to his home with plenty of corn.

THE LAD AND THE CHESTNUTS.

This is another version of the foregoing tale:

A man lived with his younger brother alone in the deep wilderness. Game was plentiful—very plentiful. The elder brother hunted it; the younger staid home to gather stieks and build the fire against the hunter's return. When he came, bringing deer, the younger one said, "I will cook the venison; give it to me to prepare for supper." The elder one replied, "I will smoke before I eat." When he had smoked he went to lie down. "I should think," said the younger, "you would want to eat now." But no, he slept instead of tasting the food, and when he awakened he bade his brother go to bed, and leave him to help himself.

The lad wondered, but he obeyed. Still he found the same thing happened every day. In the mornings the elder brother left without eating; in the evenings he bade the boy leave him alone. This awakened the curiosity of the younger. "I will watch," said he; and he watched. "He must eat something," he added to himself, "or he would die. He must eat at night." So he pretended to take no notice. At bedtime he lay down and made believe to sleep, but he kept one eye open, although he seemed to be sound asleep.

After a while the elder brother rose and opened a trap-door, and, when below the ground, he began to make strange motions, and presently drew out a kettle and commenced scraping it on the bottom. Then he poured water onto it, and at last he took a whip and struck the kettle, saying, as he placed it over the burning wood, "Now, my kettle will grow larger"; and as he struck it, it became bigger with every blow; and at length it was very large, and he set it to cool, and began greedily to eat the contents. "Ah," thought the younger brother, as he watched, "now, to-morrow, I will find out what he eats;" and he went to sleep content.

At daylight the elder set off to hunt. Now was the opportunity. Cautiously the boy lifted the trap-door, and there he at once saw the kettle. In it lay half a chestnut. "Now I know," said he, "what my brother eats;" and he thought to himself, "I will fix it all ready for him

before he comes back." As night drew on he took the kettle and scraped up the chestnut, put in some water, and found the stick. He at once commenced whipping the kettle as he had seen his brother do, saying, "Now my kettle will grow large;" and it did; but it kept on growing larger and larger, to his surprise, until it filled the whole room, and he had to go up on the roof to stir it from the outside.

When the elder brother returned he said, "What are you doing?" "I found the kettle," replied the younger, "and was getting your supper." "Woe is me," said the elder, "now I must die." He struck and struck the kettle, and reduced it by every blow, until at last he could restore it to its place. But he was sorrowful. When morning came he would not get up, nor eat of the venison, but asked for his pipe and smoked.

Day by day passed. He grew weaker each day, and after each smoke sang, "Hah geh-he geh, Non ta ge je õ dah!" "Bring me my pipe and let me die."

The younger lad was very anxious. "Where," he asked his brother, "did you get the chestnuts? Let me go and seek some for you." After many questions at length the brother said, "Far, far away is a large river, which it is almost impossible to cross. On the further side, at a great distance, stands a house; near it is a tree, a chestnut tree; there my forefathers gathered chestnuts long ago, but now none can reach it, for there stands night and day a white heron watching the tree and looking around on every side. He is set there by the women folks; half a dozen of them take care of him, and for them he watches. If he hears a sound he makes his Thr-hr-hr. Then the women come out with war-clubs and are always on their guard lest any one should gather the chestnuts, as many fall on the ground. Even a mouse is suspected of being a man. There is no chance, no chance at all." But the brother said, "I must go and try this for your sake; I cannot have you die."

So he departed on his way, after he had made a little canoe about three inches long. He walked on and on, day and night, until at last he reached the river. Then he took out of his pouch his little canoe, and drew it out and out until it was a good size, and in it he crossed the river. Then he made it small again and put it in his pouch. On and on he walked until he could see the house, and before it the chestnut tree. Then he called a mole out of the ground. The mole came and sniffed around a little plant, the seed of which the heron dearly likes. It is like a bean. Some of these seeds the young lad took and then followed the mole to its hole, and crept under the leaves until he neared the heron. Then he threw the seeds to the bird. The heron saw them and began eating them. Whilst he was occupied and noticed nothing else, the boy filled his bag with chestnuts and set off homewards; but now the heron, no longer occupied with his oh ôñ hi, suspected danger and gave his warning Thr-hr-hr. But the lad was already far away near the great river. Once more he took out his canoe, and

was on the water when the women rushed out. They threw a long fish line and caught his canoe to pull him in, but he cut it and got loose. Again the second threw a line and caught him, but again he cut loose, and so on till they had no lines left. So he reached home at length, fearful lest he should find that his brother had died during his absence, but he found him still barely alive, and shouted, "Now, brother, I'm home with the chestnuts, will you have your pipe?" And he began cooking just as his brother liked them, and he narrated all his exploits, and the brother said, "You have done me a great favor, now I shall be well, and we will be happy."

THE GUILTY HUNTERS.

There was a certain tribe whose main occupation was to hunt and to fish. In one of its hunting excursions two families of different clans of this tribe happened to pitch their respective camps quite near to each other. One of these families, in which there was an infant, had very fine luck and the other poor luck. While the father of the child was out hunting, the mother went to a neighboring stream to get some water, but before she dipped her vessel she looked into the water and saw, peering up through the sparkling stream, a very handsome young man with painted cheeks. When her husband returned she told him what she had seen, and, after a consultation, they came to the conclusion that something strange was about to happen, for what the woman had seen was but the reflection of some one hidden in the branches overhanging the stream. They rightly judged that this was an evil omen, and naturally knew that something must be done to avert the impending misfortune, for the woman said that she recognized the face as that of a man from the adjoining camp.

When night came the husband said to his wife, "You and the child must be saved. Go; I shall meet misfortune alone." She then started with the child through the forest, and went on until she came to a hollow log, into which she crept, and then she heard a great noise in the camp, and a voice saying, "You have bitten me." Soon she saw the light of torches borne by people searching for her and the child; nearer and nearer they came, until they reached the log (her hiding-place), into which they pushed their sticks, but the woman remained quiet, and heard them say, "She must be somewhere near here; any way, she cannot live long." She waited until they had left and all was quiet before she emerged from her refuge, and then traveled on as fast as she could until morning, when she came upon a trail, to which, instead of following it, she took a parallel course, and did not see any signs of life until she came to an opening, which appeared like a camping-ground. In the

center of this clearing stood a large hemlock tree, into which she climbed, and made herself and child as comfortable as she could.

Soon after ascending the tree she heard approaching voices, one of which said, "We might as well stay here as to go further." They were hunters, heavily laden with skins, meat, &c. During the night one of them said, "My thumb is painful; what shall I say bit me?" The woman heard the answer: "Say a beaver bit you."

In the early dawn the men departed and the woman began to make her way down the tree, but she saw one of the party returning, so she remained until he, finding his bow, again started homeward. When all were out of sight she brought her child down, and, taking again the course parallel to the trail, she hurried onward during the day and reached home just at twilight. When once home she related what had happened to herself, child, and husband, to her many friends who secreted her, and made preparations to have the matter investigated. The head chief was informed, and he sent out "runners" to all the members of the tribe to call them to a general council.

When the time for all to assemble had come, none but the hunters were absent, and they came after repeated and persistent requests to be present. When they did come the head chief said, "We have come to congratulate you in that you have prospered and been preserved from harm. Now, relate to us all the things that have happened to you and tell why you have returned without the other party." The hunters refused to tell anything about their affairs and pretended to know nothing about the other party.

The head chief, after severely cross-examining them, ordered that the woman be brought forth to tell her story. When she had finished her narrative of facts, as stated above, she told that one of them had his thumb bitten, explaining that he was bitten by her husband in defending himself against these robbers, who took from her murdered husband the skins and the meats which they had brought home. Hereupon the head chief gravely said to the waiting and impatient warriors, "Go, do your duty;" and they, with their war-clubs and tomahawks, soon put to death the wicked hunters.

MRS. LOGAN'S STORY.

An old man and his little nephew once lived in a dark woods. One day the man went hunting, and just before leaving told the boy he must not go eastward. But the boy became tired of playing in one place, and was one day tempted to go in the forbidden direction until he came to a large lake, where he stopped to play. While thus engaged a man came up to him and said, "Well, boy, where do you come from?" The boy told him that he came from the woods. Then the man

said, "Let us play together at shooting arrows." So they shot off their arrows up into the air, and the boy's arrow went much the higher. Then the man said, "Let us see which can swim the farthest without breathing," and again the boy beat the man. Then the latter said, "Let us go to the island, where you will see many pretty birds." So they entered the canoe. Now, on either side of the canoe were three swans which propelled it. As soon as they were seated in the canoe the man began singing, and very soon they arrived at the island, around which they traveled for some time, and then the man took off all the boy's clothes, and, jumping into his canoe, said, "Come, swans, let us go home," and he began to sing. When the boy perceived that he was deserted he went up the bank and sat down and cried, for he was naked and cold.

It began to grow dark very fast, and he was greatly frightened when he heard a voice say, "Hist! keep still," and, looking around, he saw a skeleton on the ground near him, which beckoned him and said, "Poor boy, it was the same thing with me, but I will help you if you will do something for me." The boy readily consented. Then the skeleton told him to go to a tree near by, and dig on the west side of it, and he would find a tobacco-pouch full of tobacco, a pipe, and a flint; and the boy found them and brought them to the skeleton. It then said, "Fill the pipe and light it;" and he did so. "Put it in my mouth," said the skeleton; and he did so. Then, as the skeleton smoked, the boy saw that its body was full of mice, which went away because of the smoke. Then the skeleton felt better, and told the boy that a man with three dogs was coming to the island that night to kill him, and in order to escape he must run all over the island and jump into the water and out again many times, so that the man would lose the trail. Then, after tracking the island all over, he must get into a hollow tree near by, and stay all night. So the boy tracked the island all over and jumped into the water many times, and at last went into the tree. In the early morning he heard a canoe come ashore, and, looking out, saw another man with three dogs, to whom the man said, "My dogs, you must catch this animal." Then they ran all over the island, but not finding him, the man became so angry that he killed one of the dogs and ate him all up. Then, taking the two remaining, he went away. The boy then came out from his hiding-place, and went to the skeleton, who said, "Are you still alive?" The boy replied, "Yes." "Well," said the skeleton, "the man who brought you here will come to-night to drink your blood, and you must go down to the shore where he will come in, and dig a long pit and lie down in it and cover yourself up with the sand so he cannot see you, and when he comes ashore and is off, you must get into the canoe and say, 'Come, swans, let's go home,' and if the man calls for you to come back you must not turn around or look at him."

The boy promised to obey and soon the man who had brought him came ashore on the island. Then the boy jumped into the canoe, saying,

"Come, swans, let's go to our place;" and as they went he sang just as the man had done. They had gone but a little way when the man saw them. He began to cry, "Come back! Oh, do come back!" but the boy did not look around and they kept on their way. By and by they came to a large rock in which there was a hole, and the swans went up into the rock until they came to a door which the boy proceeded to open. Upon entering the cave he found his own clothes and many others, and also a fire and food all prepared, but no living person. After putting on his clothes he went to sleep for the night. In the morning he found a fire and food, but saw no one.

Upon leaving the cave he found the swans still waiting at the entrance, and, jumping into the canoe, he said, "Come, swans, let's go to the island." When he arrived there he found the man had been killed and nearly eaten up. He then went to the skeleton, which said, "You are a very smart boy; now you must go and get your sister whom this man carried off many years ago. You must start to-night and go east, and by and by you will come to some very high rocks where she goes for water, and you will find her there and she will tell you what to do."

The boy started and in three days arrived at the rocks, where he found his sister, to whom he called, "Sister, come, go home with me"; but she replied, "No, dear brother, I cannot go; a bad man keeps me here, and you must go, for he will kill you if he finds you here." But as the boy would not be persuaded to leave without her she allowed him to stay. Now this very bad man had gone to a great swamp where women and children were picking cranberries. The sister then went to the house and, taking up the planks over which her bed was made, she dug a pit underneath it sufficiently large for her brother to sit in; then she went to her brother and bade him follow her, and to be sure and step in her tracks and not touch anything with his hands or his clothes. So she covered him up in the pit she had prepared for him, and made her bed up again over the place. She then cooked a little boy for the man, put it with wood and water by his bed, and then went and lay down. Soon the man and dogs returned; then immediately the dogs began barking and tearing around as if they were mad. The man said, "You surely have visitors"; she replied, "None but you." And he said, "I know better"; and he took a stick and commanded her to tell him the truth, but she denied it, saying, "Kill me if you like, but I have none." He then went to his bed and sat down to eat his supper; but he said to himself, "She has some one hidden; I will kill him in the morning." He then called her to build a fire, but she replied, "You have wood, build your own fire." Then he said, "Come, take off my moccasins"; but she replied, "I am tired, take them off yourself." Then he said to himself, "Now I know she has seen some one, for she was never so saucy."

In the morning he started off for the swamp to get some children for his dinner. A short distance from home he concealed himself to watch the girl. As soon as he was gone she called her brother and said,

"Come, let us take his canoe and go quickly." So they ran and jumped into the canoe and went off, but the man saw them and ran, throwing a hook which caught the canoe, but as he was pulling it ashore the boy took a stone from the bottom of the canoe and broke the hook. Then they proceeded again very fast. Then the enraged man resorted to another expedient: Laying himself down upon the shore he began to drink the water from the lake, which caused the boat to return very fast. The man continued to drink, until he grew very big with so much water in him. The boy took another stone and threw it and hit the man so it killed him, and the water ran back into the lake. When they saw that he was dead they went back, and the boy said to the two dogs, "You bad dogs, no one will have you now; You must go into the woods and be wolves"; and they started for the woods and became wolves.

Then the boy and his sister went to the island. The boy went to the skeleton, which said, "You are a very smart boy to have recovered your sister—bring her to me." This the boy did, and the skeleton continued, "Now, gather up all the bones you see and put them in a pile; then push the largest tree you see and say, 'All dead folks arise'; and they will all arise." The boy did so, and all the dead arose, some having but one arm, some with but one leg, but all had their bows and arrows.

The boy then said to his sister, "Come, let's go home." When they arrived home they found their own uncle; he looked very old. For ten years he had cried and put ashes upon his head for his little nephew, but now he was very happy to think he had returned.

The boy then told the old man all that he had done, who said, "Let us build a long house." And they did so, and put in six fire-places. Then the boy went back to the island for his people and brought them to the house, where they lived peacefully many years.

THE HUNTER AND HIS DEAD WIFE.

Once upon a time there was a man and his wife who lived in the forest, very far from the rest of the tribe. They used to go hunting together very often, but after a time there were so many things for the wife to do that she staid at home and he went alone. When he went alone he never had good luck. One day the woman was taken sick, and in a day or two she died. The man felt very badly and buried her in the cabin. He was very lonesome; and after a day or two he made a wooden doll about her size and dressed it in the clothes she used to wear. Then he put it down in front of the fire-place and felt better. Then he went hunting; and when he came back he would go up to the doll and brush the ashes off from the face, for as the wood fell down the ashes would rattle onto the face. He had to do his cooking, mending, and making fire, for now there was no one to help him; and so a year

passed away. One day when he came home from hunting there was a fire and wood by the door. The next night there was wood and fire and a piece of meat all cooked in the kettle. He looked all over to see who had done this, but could find no one. The next time he went hunting he did not go far and went back quite early, and when he came in sight of the cabin he saw a woman going into the house with wood on her shoulders; he saw, and opened the door quickly, and there was his wife sitting in a chair and the wooden doll was gone. Then she spoke to him, saying, "The Great Spirit felt sorry for you, so he let me come back to see you, but you must not touch me till we have seen all of our people; if you do, you will kill me." So they lived along for some time, when one day the man said, "It is now two years since you died. Let us go home. So you will be well." So he prepared meat for the journey—a string of deer meat for her to carry and one for himself; and so they started. It was going to take them six days to get to the rest of their tribe; when they were within a day's journey of the camp it began to snow, and as they were very weary they lighted fire and partook of food and spread their skins to sleep; but the desire of the man to once more clasp his wife in his arms was too great, and he went up to her and put out his hands; but she motioned him away and said, "We have seen no one yet." He would not listen to her, and he caught her in his arms, and, behold, he was holding the wooden doll! His sorrow was very great. He pushed on to the camp and there he told them all that had befallen him. Some doubted, and they went back with him and found the doll; they also saw the track of the two people in the snow, and the track just like the foot of the doll. The man was ever after very unhappy.

A SURE REVENGE.

Far in the ages of the past, a tribe of the Senecas settled upon the banks of Lake Erie. One eventful winter their enemies, the Illinois, came in great numbers upon the peaceful settlement, surprised the people in their homes, and, in spite of a stout resistance, killed a large number of them and took a middle-aged woman and a boy captive. They started off with the prisoners, and the first day's journey was one of pain and restlessness to the captives. They were foot-sore and weary when camp was pitched for the night. Then around a roaring fire the warriors gloated over the bloody deed. They called the boy and bid him join them in their songs of triumph, adding that they had no desire to hurt him; if he sang well he might enjoy himself. The lad pretended that he could not sing their language, but said that he would sing their song in his tongue, knowing that they could not comprehend a word of it. To this they agreed, and while they shouted out their jubilant delight he repeated, again and again, "I shall never forget what you have done to my people.

You have stolen a helpless woman and a little boy from among them. I shall never forget it. If I am spared you will all lose your scalps." The Illinois warriors understood not a word; they thought he was joining in their triumph, and were satisfied that he would soon forget his own people.

After they had marched three days the woman became exhausted, and she was too faint to be dragged further. The warriors held a council, and she meanwhile spoke to the Seneca boy in earnest tones. "Avenge my blood!" said she; "and when you return to your own people tell them how the cruel Illinois took my life. Promise me you will never cease to be a Seneca." As he finished promising all she asked, she was slain and left dead on the ground.

Then they hurried forward, nearing their own settlement early in the evening. Next day two runners were sent to the village to proclaim their success and return, and all the population turned out with shouts and cries of joy to meet them.

Now the fate of the boy had to be determined. He listened as the chief, with exaggerated gestures and exclamations, gave an account of the successful expedition. The people, as they listened, grew so excited that they beat the ground with their clubs and wished they could exterminate every Seneca in the world. They longed to kill the boy, but the chiefs held a council and decided that there was stuff in him, and they would therefore torture him, and if he stood the test, adopt him into their own tribe. The boy meantime had dreamed a dream, in which he had been forewarned that the Illinois would inflict horrible tortures upon him. "If he can live through our tortures," said the chief, "he shall become an Illinois." The council fire glowed red with burning heat. They seized the captive and held him barefooted on the coals until his feet were one mass of blisters. Then they pierced the blisters with a needle made of fish bone and filled up the blisters with sharp flint stones. "Now run a race," they recommended; "run twenty rods." In his dream he had been told that if he could reach the Long House and find a seat on the wild-cat skin, they would vote him worthy of his life. His agony was intense, but up in his heart rose the memory of his tribe; and as the signal for his start was given he commenced singing with all his might, saying, as they thought, their war song, but in reality the words: "I shall never forget this; never forgive your cruelty. If I am spared you shall every one of you lose your scalps." This gave him courage. He forgot his agony. He bounded forward and flew so swiftly that the Indians, who stood in rows ready to hit him as he passed with thorn-brier branches, could not touch him. He rushed into the Long House; it was crowded, but he spied a wild-cat skin on which an old warrior sat, and he managed to seat himself upon the tail, remembering his dream. The chiefs noticed his endurance and said again, "If we spare his life he will be worthy to become an Illinois; but he knows the trail, so we had better kill him."

A solemn council was held. All the warriors agreed that he had borne the tortures well, and had stuff in him to make a warrior. "He may forget," they said. Still others disagreed and gave their opinion that he ought to be tried still more severely. The majority finally decided that he must die, and in three days should be burned at the stake.

When the day arrived a large fire of pine knots was prepared, and they bound the lad to a stake, and placed him in the midst. Torches were ready to set fire to them, when an old warrior suddenly approached from the forest. It was the chief who had trained other captive Indians. He stood and looked at the boy. Then he said, "His eye is bright. I will take him. I will make a warrior of him. I will inflict our last torture upon him, and if he survives I will adopt him into the tribe." He cut the thongs that bound the boy, and led him away to a spring. "Drink!" he said. And as the lad stooped, he pressed him down under the water until he was well nigh strangled. Three times he subjected him to this barbarity; then as he was still alive, although very weak, he took him to his wigwam and dressed his feet, and told him henceforth he should be an Illinois. No one guessed that revenge was in his heart.

Time passed. He became a man. He had a chief's daughter as his wife. The tribe thought he had lost all memory of his capture. He followed the customs of the Illinois, and was as one of them. He was named Ga-geh-djo-wă. They did not permit him to join them in their warlike expeditions, but he joined in their war dances when they returned. And so as the years passed on he was much esteemed for his feats as a hunter, and his strength and endurance were by-words among the Illinois.

He had been fifteen years among them when he heard them speak of an expedition against the Senecas. He begged to join, and they listened with delight when he declared that he, Ga-geh-djo-wă, would bring home more scalps than any. "He is one of us," they said, and gave him the permission he craved.

Early in the morning the warriors started, and, delighted with his eloquence and readiness to go against his own tribe, they elected him chief of the expedition. They marched on and on for many days, little guessing how his heart beat as they approached the wigwams of the Seneca settlement. He began to issue orders for the attack. "Send scouts," he said, "to the sugar camp, and let them hide in a bush, and return and tell us what they have seen."

Two warriors obeyed his directions, but returned saying there were no signs of the tribe. Then he sent others in a different direction. Their report was the same. Ashes everywhere, they reported, but no smoke and no fires. The Senecas must have left. Then at the council held that night Ga-geh-djo-wă proposed to go himself, with another warrior. This was agreed to, and they set out together. When they had gone five or six miles, the wily chief said to his companion, "Let us separate and each take a different pathway. You go over the hills; I

will go through the valley. We will meet on the mountain at dusk." So they parted, and Ga-geh-djo-wă, remembering his way, sped where he guessed he should find some of his old tribe. He found, as he expected, a family he knew. In hurried words he explained to them their danger: "The treacherous Illinois are upon you. Warn all the tribe of Senecas: bid them come early and hide along the range above the valley. I will be there with a heron's plume on my crest, and when I stumble it is the signal for the Senecas to attack. Go and tell the word of Ga-geh-djo-wă. He is true."

Returning to the appointed spot he reported that he had seen nothing, and hastened back to the camp. Then he said: "I remember these hills. I know where the Senecas hide. Give me the bravest warriors and we will go ahead. I can track them to their hiding-place. See! there below rises the smoke of their wigwams. Send two warriors after us at a short distance. We will surprise the Senecas."

Early morning saw the camp in activity, every warrior panting for the scalps he yearned to procure. Little they dreamed that already five hundred Senecas awaited them in the valley. The march commenced. As they entered the valley Ga-geh-djo-wă gazed anxiously around and delightedly caught sight of a face among the bushes. Now he knew the Senecas had heeded him. He led his men forward; then, pretending to miss his footing, he fell. Instantly the war-cry sounded; the Senecas rushed from their ambush, and he left his treacherous foes and rejoined his own people.

The slaughter was great. All the Illinois warriors but two in the rear were slain. Three hundred scalps revenged the treachery of the Illinois. Ga-geh-djo-wă was seized by the jubilant Senecas and borne in triumph to their settlement. Around the fires, as they displayed the scalps of their enemies, they listened to his recital of their cruelty, of his tortures, and of the woman's death. Never again did he leave them. He lived many years, the most esteemed warrior and chief of the Senecas, and when he died they buried him with the highest honors they knew, and have kept his name sacred in the legends of the tribe to this day.

TRAVELER'S JOKES.

An Indian traveler, tired of his uneventful journey, undertook to create an excitement after the following fashion: An old Indian custom is for runners, or those carrying important news, to announce the fact and gather the people together by crying, in singing tones, "Goh-weh, goh-weh." This the traveler began doing, and when the crowd called upon him to stop and tell his news, he began, "As I came through the last village the people were so delighted with my news that they all danced for joy, and shouted and kissed me." This he told so earnestly

and sincerely that the people, not wishing to be outdone by any other tribe, also began singing and kissing him and making merry; and while the excitement was at its height, pleased with his success, the facetious traveler escaped and continued his journeyings.

Arrived at the next village he again began calling, "Goh-weh, goh-weh"; and the people and chiefs gathered around him, crying, "Let us hear." And he answered, "As I passed through the last town some people wept at my news, others began quarreling, kicking, and fighting." Immediately his contagious news produced its effect, and in the confusion he again escaped, saying to himself "What fools people are."

That night, as he was preparing to camp out, a man passed who inquired the distance to the next village; but the traveler said, "You cannot reach it to-night. Let us camp together." As they were each recounting stories, and the new-comer was boasting of his superior cunning, the traveler inquired, "What log is that you now use for a pillow?" and he guessed hickory, elm, &c. But the traveler said, "No, it is everlasting sleep." In the morning the traveler took some pitchy resin and rubbed over the eyes of his sleeping comrade and left, laughing at the probable chagrin the man would feel when attempting to open his eyes, and in the recollection of the warning regarding everlasting sleep and his boasts of superior cunning.

No further accounts of the traveler's jokes are told.

KINGFISHER AND HIS NEPHEW.

An old man and his nephew were living together in a good home near the river, where they enjoyed themselves day after day. One morning the old man said to his nephew, "When you are a man, remember in hunting never to go west; always go to the east."

The young man reflected and said to himself, "Why should this be so?" My uncle To-bé-se-ne always goes west, and brings home plenty of fish. Why should he tell me not to go? Why does he never take me with him?"

He made up his mind at last that he would go, never minding about the advice. So he set off in a roundabout way, and as he passed the marsh land near the river he saw his uncle. "Ha!" he thought, "now I know where he catches his fish"; and he watched him take from his pocket two sharp sticks and put them in his nose, and then plunge into deep water and come up with a nice fish. He watched him carefully and then returned home. Presently the uncle came back, bringing some nice fish, but he never guessed that the nephew had seen him.

The young man now felt certain that he could fish as well as his uncle. Accordingly, one day when the old man had gone deer hunting, he thought it a good opportunity to try the new method. He hunted

among his uncle's things until he found two sticks, and then he set off to the same log where he had seen his uncle sitting, which projected above the water in the river. He saw the fishes swimming about, so he at once stuck the two sticks into his nose, and plunged in. Then the sticks went deep into his nose and made it ache dreadfully, and he felt very sick. Home he hurried and lay down, thinking he should die of the agony. When his uncle came home he heard him groaning, and said, "What ails you? Are you sick?" "Yes, uncle," replied he, "I think I shall die. My head is sore and pains me." "What have you been about?" asked the uncle, severely. "I have been fishing," confessed the young man; "I took your things, and I know I have done wrong." "You have done very wrong," said the uncle; but he took the pincers and drew out the sticks, and the young man promised never again to fish in the west, and got well.

After a while, however, he thought that he would go and see once more, although he had been forbidden. So he started west. He heard boys laughing, and he had none to play with, so he joined them. They invited him to swim with them and he accepted, and they had a very gay time together. At last they said, "It is time to go home; you go, too." Then he saw that they had wings, and they gave him a pair and said, "There is an island where all is lovely; you have never been up there—over the tall tree up in the air; come." So they started up in the air, far away above the trees, till they could see both sides of the river; and he felt very happy. "Now," said they, "you can see the island"; and he looked down and saw the print of their tracks on the island; so he knew they had been there. Then said they, "Let us go in swimming again." So they went into the water. Then they said, "Let us see which can go down and come up the farthest"; and they tried one at a time, and he was the last, so he must go the farthest; and while he was in the water the rest put on their wings and, taking his also, flew up in the air. He plead in vain for them to wait; but they called, as though speaking to some one else, "Uncle, here is game for you to-night." Then they flew away in spite of his entreaties, and he thought to himself, "I shall surely be destroyed, perhaps by some animal."

As he looked around he perceived tracks of dogs which had clawed the different trees, and then he concluded that perhaps they would tear him to pieces. In order to confuse them in their scent he climbed each tree a little way, and so went on until he reached the last tree on the island, in which he remained and listened in suspense. He soon heard a canoe on the river and some one calling the dogs. Then he concluded his conjectures were true. After making a fire the man sent out his dogs. The man had a horrid-looking face, both behind and before, which the poor nephew could see by the fire-light. Then the dogs began barking, having traced the tracks to the first tree; they made such a noise that the man concluded they had found the game, and went to the tree, but found nothing. So they went on to the next, and the next,

with the same experience, and this they continued the night long. Then the old man said, very angrily, "There is no game here; my nephews have deceived me." And he returned, leaving the last tree.

After sunrise the poor fellow came down from the tree, saying, "I think I have escaped, for if those young fellows return I will watch them and contrive to get their wings from them." He then concealed himself and patiently awaited their coming. He soon heard their voices, saying, "Now we will have a good time." They first jumped around to warm themselves, and then said, "Let us all dive together." Then he rushed out, and, taking all the wings, he put on one pair, and flew away, calling out, "Uncle, now there is plenty of game for you"; and when they entreated him he replied, "You had no mercy on me; I only treat you the same." Then he flew on until he came to his old home, where he found his old uncle, to whom he recounted the whole story; and after that time he remained peacefully at home with his good uncle, where he still resides.

"So many times my old grandfather, chief Warrior, told me that story," said Zachariah Jamieson to me on the Seneca Reservation.

THE WILD-CAT AND THE WHITE RABBIT.

[Told by Zachariah Jamieson.]

The wild cat, roaming disconsolately in the woods, experienced the sense of utter loneliness which calls for companionship. A friend he must have or die. Cats there were none within speaking distance, but rabbits it might be possible to entice. He commenced a plaintive ditty. His soul craved a white rabbit above all else, and his song was pathetic enough to entice the most obdurate:

He gah yah neh
He gah yah! He găh yăh
Di ho ni shu guă da-se
He yah gah.

His meaning was simple as his song, "When you are frightened, sweet rabbit, you run in a circle."

He was wise in his generation. A short distance off lay a white rabbit in his lair; hearing the melodious ditty he pricked up his ears. "Heigho!" exclaimed he, "that dangerous fellow, the wild-cat, is around; I hear his voice; I must scud"; and away he ran, turning from the direction in which the voice came and hastening with all his might. He had gone but a short distance when he stopped, turned back his ears and listened. There was the song again:

He găh yăh! He găh yăh!
Di ho—

He waited to hear no more. On he sped for a while; then once more he laid back his ears and halted again; surely this time the song was nearer. He was still more frightened. "I will go straight on" said he; but he thought he was following an opposite direction. On and on he sped, scarce daring to breathe; then a pause; alas! the singer is nearer—nearer yet. Unfortunate rabbit! he could but follow his instinct and run in a circle which brought him each time nearer his enemy. Still the song went on, until, circling ever nearer, white rabbit fell a victim to the wild-cat.

CHAPTER VI.

RELIGION.

In a former chapter it was concluded that the "Great Spirit" is the Indian's conception of the white man's God. This belief in God is common now to all of the Iroquois, but the Christian religion is professed by only about one-half of their number. The other half of the people are usually denominated "pagans." The so-called Christian Indians are distributed among various sects, worship in churches, and profess Christian creeds.

The pagan Indians worship the sun, moon, stars, thunder, and other spirits rather vaguely defined. But though in talking with white men they frequently speak of the Great Spirit, yet in their worship there seems to be no very well-defined recognition of the same, the term being used in a confused manner. Their religious rites are chiefly in the form of festivals.

Among these so-called pagan Iroquois of to-day no private worship is known, unless the offering of burning tobacco to Hinu[n], or the occasional solitary dance, as practiced by some of the squaws, be so considered.

The annual public national and religious festivals are eight in number, with the occasional addition of those specially appointed. As the nucleus to the ceremonies observed at these festivals we find many of their ancient practices retained, such as dancing, games, the use of incense, &c. And upon these have been grafted, according to their peculiar interpretation, varied forms from the Romish, Jewish, or Protestant churches, which to them seemed suitable and adaptable. Although the Tuscaroras of western New York retain many of the old superstitions none of the national festivals are there observed, and hardly a trace now remains of their old religious customs.

About half of the Senecas still adhere to paganism, but it is only among the Onondagas that all the old festivals are strictly and religiously observed, after the sequence and manner of the following account of the New-Year Festival:

NEW-YEAR FESTIVAL.

At the first new moon of the new year, which sometimes occurs three weeks after New Year's Day, the chiefs assemble and call what they

term a "holy meeting," the order of which is as follows: A bench or table is placed in the center of the circle of chiefs, upon which are placed their strings of Indian wampum. One then rises and makes a long speech, in which he introduces the sayings, maxims, and teachings of Handsome Lake, who, nearly a century ago, introduced a new form into the Seneca religion. Speeches of this kind occupy four days. On the fifth day the principal chiefs, taking hold of the wampum, say: "I put all my words in this wampum"; "I have been drunk"; or, "I have sinned," &c. On the sixth day the warriors go through the same form of confession. On the following day the chiefs pass the wampum around among the assembly.

At the conclusion of this portion of their ceremonies the U-stu-ä-gunä, or feather dance, sometimes called the dance of peace, is performed. For this there is a particular costume, by which it must always be accompanied. The dance is simple. Two men are chosen to stand in the center and are encircled by dancers.

After this dance the clans are divided for the games as follows:

Bear Deer Eel Hawk	against	Wolf. Beaver. Snipe. Turtle.

The clans thus divided hold their feasts in separate houses, even although husband and wife be divided. On the fourth day each of these divisions, singing a chant, repairs to the Council House. The gambling then commences and continues three more days. The gambling and betting concluded, two Indians, costumed as medicine men, run into all the houses, and raking up the ashes call on all to repair to the Council House. In the evening of this day begins the "scaring of witches"; speeches are made; Indian songs or chants are sung the while an old man or woman enters, appearing to wish or search for something, the assembly guessing at the object desired. Should the guess be correct, a reply of "thank you" is made. He or she receives it, and as a return proceeds to dance.

On the following evening a number of Indians in frightful costumes enter on their knees, yelling and groaning. Shaking their rattles, they proceed to the council fire, where they stir up the ashes. The chiefs then present to them Indian tobacco, and they are commanded to perform all the errands and act as the messengers for the evening.

On this same evening it is given forth that on the ensuing day, at a given hour, the white dog will be roasted. For this purpose a perfectly pure, unblemished white dog is selected, and five young men of the most spotless reputation are chosen to kill the dog, around whose neck two ropes are fastened, and the young men then pull the ropes till the dog is strangled. When dead it is presented to the victorious gambling party, who proceed to comb out its hair carefully with teasels. It is then dec-

orated with wampum, ribbons, Indian tobacco, strips of buckskin, small baskets, silver brooches, &c.

The four winning clans then form in a circle around the dog and the four leading chiefs. The first chief chants around the dog; the second puts it upon his back; the third carries an extra basket trimmed with beads, brooches, and ribbons, and filled with Indian tobacco; the fourth chief, barcheaded and scantily clothed, follows as they pass in Indian file to the other Council House, where the defeated division makes an offering, which is accepted by the fourth chief. All then proceed together to the appointed place for the dog roasting. While the fire is being lighted the chiefs chant and praise the Great Spirit, after which, while the warriors are shooting up at the sun, the dog is thrown into the fire, which ceremony unites all the clans. This is followed by chants. The leading chief then gives notice of the dance for the following day. At this first day of rejoicing or dancing the "feather dance" is repeated, and a chant is sung which embraces almost the entire language of the Protestant Episcopal canticle, *Benedicite omnia opera Domini;* but the translation, in place of commanding the works of God to render him praise, praises the works themselves. Instead of "O ye angels of the Lord," that passage is rendered, "O ye four persons who made us and have charge of us, we praise thee," &c.

The feast then follows, consisting of meats garnished with sunflower oil, &c. The third day of dancing is devoted to the war dance, which is dedicated to the sun, moon, stars, and thunder. The feather dance is again introduced, the women this time participating in it. In itself the dance is very monotonous, except for the variety introduced by whooping, beating the floor with the war clubs, occasional speeches, and offerings to the dancers.

At the conclusion of the feather dance the Si-ti-gă-ni-ai, or shuffle dance, follows. This is executed solely by the women, who do not lift their feet from the floor. The men keep time by drumming and using the rattles. Then succeeds the guide dance, performed as follows: Two or four men stand inside a circle and sing a dance song, while all the people join in the dance in pairs, the couples facing each other. Consequently, two out of each four have to go backwards, but at a signal in the music all change places. This is invariably the closing dance of the new year's festival, but it is then arranged that seven days later the medicine men shall all reappear, and for a day and a night go about in the houses and chase away all diseases, &c. This closes by all repairing to the Council House, where a large kettle of burnt corn, sweetened with maple sugar, is prepared for the medicine men, who eat it from the kettle. From this Council House fire the medicine men throw the ashes upon the assembled people for the purpose of dispelling witches and disease. This concludes the new year's festival ceremonies after a duration of three weeks.

TAPPING THE MAPLE TREES.

The next public service is at the tapping of the maple trees, and consists of the war dance, the performance of which will, it is hoped, bring on warmer weather and cause the sap to flow.

As a special favor to ambitious parents, the dancing warriors often bear in their arms infant boys, who are supposed to become early inured and inspired with a desire for a warrior life.

At the close of the sugar season follows the maple-sugar festival, the soups of which are all seasoned with the newly-made sugar. This festival, in which a number of dances are introduced, lasts but one day.

PLANTING CORN.

The corn-planting festival is very similar to that of the new year, introducing the confession of sins by the chiefs, the feather dance, &c. This lasts seven days.

STRAWBERRY FESTIVAL.

During the strawberry season, at a time appointed previously by the chiefs, the women procced to the fields and gather the berries. The great feather dance follows; afterwards two children carry about a vessel containing the berries, mixed with water and sugar, and present it to each person, who is expected to give thanks as he receives it. More dancing ensues.

The bean festival next occurs and is very similar to the strawberry festival.

GREEN-CORN FESTIVAL.

This is preceded by a hunt by the warriors for deer or bear meat to use for the soups.

During their absence the ceremony of confession takes place, as in the New Year's festival, and the women are engaged in roasting the corn preparatory to its being placed in the kettle with the beans for the succotash. If the weather is very warm the hunters bring home the meat ready baked. On their return the feasting and dancing commence and continue for four days. The gambling, which is considered a religious ceremony, is then introduced, silver brooches, war clubs, jewelry, bead work, &c., being used as the wagers. Sometimes the clans play against each other, but frequently the women play against the men, and are oftener the winning party.

This festival is the gala season of the Indian year, and all appear in their most fanciful decorations, some of the costumes having an intrinsic value of several hundred dollars.

GATHERING THE CORN.

The last public festival of the year is at the gathering of the corn. After the thanksgiving dance there is a repetition of the confession of sins and the feather dance. In the latter the gayly-colored corn is

used as a decoration, sometimes whole strings of it, still upon the cob, being worn as ornaments.

The above form the eight public yearly festivals of the Iroquois, but occasionally other dances are introduced. Among these are the raccoon dance and the snake dance, the latter being similar to the guide dance, but partaking more of a gliding, snake-like motion.

Private dances are held by the medicine men, in which are introduced the Kâ-nai-kwä-ai, or eagle dance; the Tai-wa-nu-ta-ai-ki, or dark dance, performed in the dark; the Ka-hi-tu-wi, or pantomime dance; and the W-na-tai-nu-u-ni, or witches' dance. On the death of a medicine man a special dance is held by his fraternity, and, during the giving of certain medicines, medicine tunes are chanted. No dances are held upon the death of private individuals, but at the expiration of ten days a dead feast is celebrated and the property of the deceased is distributed by gambling or otherwise. Occasionally speeches are made, but no singing or dancing is indulged in, except during a condolence council, when deceased chiefs are mourned and others chosen in their places.

Private dances are not infrequently given by individual members of the tribe, who, having conceived a great affection for each other, publicly cement it by a friendship dance.

SMITHSONIAN INSTITUTION——BUREAU OF ETHNOLOGY.

ANIMAL CARVINGS

FROM

MOUNDS OF THE MISSISSIPPI VALLEY.

BY

HENRY W. HENSHAW.

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ANIMAL CARVINGS FROM MOUNDS OF THE MISSISSIPPI VALLEY.

By H. W. Henshaw.

INTRODUCTORY.

The considerable degree of decorative and artistic skill attained by the so-called Mound-Builders, as evidenced by many of the relics that have been exhumed from the mounds, has not failed to arrest the attention of archæologists. Among them, indeed, are found not a few who assert for the people conveniently designated as above a degree of artistic skill very far superior to that attained by the present race of Indians as they have been known to history. In fact, this very skill in artistic design asserted for the Mound-Builders, as indicated by the sculptures they have left, forms an important link in the chain of argument upon which is based the theory of their difference from and superiority to the North American Indian.

Eminent as is much of the authority which thus contends for an artistic ability on the part of the Mound-Builders far in advance of the attainments of the present Indian in the same line, the question is one admitting of argument; and if some of the best products of artistic handicraft of the present Indians be compared with objects of a similar nature taken from the mounds, it is more than doubtful if the artistic inferiority of the latter-day Indian can be substantiated. Deferring, however, for the present, any comparison between the artistic ability of the Mound-Builder and the modern Indian, attention may be turned to a class of objects from the mounds, notable, indeed, for the skill with which they are wrought, but to be considered first in another way and for another purpose than mere artistic comparison.

As the term Mound-Builders will recur many times throughout this paper, and as the phrase has been objected to by some archæologists on account of its indefiniteness, it may be well to state that it is employed here with its commonly accepted signification, viz: as applied to the people who formerly lived throughout the Mississippi Valley and raised the mounds of that region. It should also be clearly understood that by its use the writer is not to be considered as committing himself in any way to the theory that the Mound-Builders were of a different race from the North American Indian.

Among the more interesting objects left by the Mound-Builders, pipes occupy a prominent place. This is partly due to their number, pipes being among the more common articles unearthed by the labors of explorers, but more to the fact that in the construction of their pipes this people exhibited their greatest skill in the way of sculpture. In the minds of those who hold that the Mound-Builders were the ancestors of the present Indians, or, at least, that they were not necessarily of a different race, the superiority of their pipe sculpture over their other works of art excites no surprise, since, however, prominent a place the pipe may have held in the affections of the Mound-Builders, it is certain that it has been an object of no less esteem and reverence among the Indians of history. Certainly no one institution, for so it may be called, was more firmly fixed by long usage among the North American Indians, or more characteristic of them, than the pipe, with all its varied uses and significance.

Perhaps the most characteristic artistic feature displayed in the pipe sculpture of the Mound-Builders, as has been well pointed out by Wilson, in his Prehistoric Man, is the tendency exhibited toward the imitation of natural objects, especially birds and animals, a remark, it may be said in passing, which applies with almost equal truth to the art productions generally of the present Indians throughout the length and breadth of North America. As some of these sculptured animals from the mounds have excited much interest in the minds of archæologists, and have been made the basis of much speculation, their examination and proper identification becomes a matter of considerable importance. It will therefore be the main purpose of the present paper to examine critically the evidence offered in behalf of the identification of the more important of them. If it shall prove, as is believed to be the case, that serious mistakes of identification have been made, attention will be called to these and the manner pointed out in which certain theories have naturally enough resulted from the premises thus erroneously established.

It may be premised that the writer undertook the examination of the carvings with no theories of his own to propose in place of those hitherto advanced. In fact, their critical examination may almost be said to have been the result of accident. Having made the birds of the United States his study for several years, the writer glanced over the bird carvings in the most cursory manner, being curious to see what species were represented. The inaccurate identification of some of these by the authors of "The Ancient Monuments of the Mississippi Valley" led to the examination of the series as a whole, and subsequently to the discussion they had received at the hands of various authors. The carvings are, therefore, here considered rather from the stand-point of the naturalist than the archæologist. Believing that the question first in importance concerns their actual resemblances, substantially the same kind of critical study is applied to them which they would receive were they from the hands of a modern zoological artist. Such a course has

obvious disadvantages, since it places the work of men who were in, at best, but a semi-civilized condition on a much higher plane than other facts would seem to justify. It may be urged, as the writer indeed believes, that the accuracy sufficient for the specific identification of these carvings is not to be expected of men in the state of culture the Mound-Builders are generally supposed to have attained. To which answer may be made that it is precisely on the supposition that the carvings were accurate copies from nature that the theories respecting them have been promulgated by archæologists. On no other supposition could such theories have been advanced. So accurate indeed have they been deemed that they have been directly compared with the work of modern artists, as will be noticed hereafter. Hence the method here adopted in their study seems to be not only the best, but the only one likely to produce definite results.

If it be found that there are good reasons for pronouncing the carvings not to be accurate copies from nature, and of a lower artistic standard than has been supposed, it will remain for the archæologist to determine how far their unlikeness to the animals they have been supposed to represent can be attributed to shortcomings naturally pertaining to barbaric art. If he choose to assume that they were really intended as imitations, although in many particulars unlike the animals he wishes to believe them to represent, and that they are as close copies as can be expected from sculptors not possessed of skill adequate to carry out their rude conceptions, he will practically have abandoned the position taken by many prominent archæologists with respect to the mound sculptors' skill, and will be forced to accord them a position on the plane of art not superior to the one occupied by the North American Indians. If it should prove that but a small minority of the carvings can be specifically identified, owing to inaccuracies and to their general resemblance, he may indeed go even further and conclude that they form a very unsafe basis for deductions that owe their very existence to assumed accurate imitation.

MANATEE.

In 1848 Squier and Davis published their great work on the Mounds of the Mississippi Valley. The skill and zeal with which these gentlemen prosecuted their researches in the field, and the ability and fidelity which mark the presentation of their results to the public are sufficiently attested by the fact that this volume has proved alike the mine from which subsequent writers have drawn their most important facts, and the chief inspiration for the vast amount of work in the same direction since undertaken.

On pages 251 and 252 of the above-mentioned work appear figures of an animal which is there called "Lamantin, Manitus, or Sea Cow," con-

cerning which animal it is stated that "seven sculptured representations have been taken from the mounds." When first discovered, the authors continue, "it was supposed they were monstrous creations of fancy; but subsequent investigations and comparison have shown that they are faithful representations of one of the most singular animal productions of the world."

These authors appear to have been the first to note the supposed likeness of certain of the sculptured forms found in the mounds to animals living in remote regions. That they were not slow to perceive the ethnological interest and value of the discovery is shown by the fact that it was immediately adduced by them as affording a clew to the possible origin of the Mound-Builders. The importance they attached to the discovery and their interpretation of its significance will be apparent from the following quotation (p. 242):

> Some of these sculptures have a value, so far as ethnological research is concerned, much higher than they can claim as mere works of art. This value is derived from the fact that they faithfully represent animals and birds peculiar to other latitudes, thus establishing a migration, a very extensive intercommunication or a contemporaneous existence of the same race over a vast extent of country.

The idea thus suggested fell on fruitful ground, and each succeeding writer who has attempted to show that the Mound-Builders were of a race different from the North American Indian, or had other than an autochthonous origin, has not failed to lay especial stress upon the presence in the mounds of sculptures of the manatee, as well as of other strange beasts and birds, carved evidently by the same hands that portrayed many of our native fauna.

Except that the theories based upon the sculptures have by recent writers been announciated more positively and given a wider range, they have been left almost precisely as set forth by the authors of the "Ancient Monuments," while absolutely nothing appears to have been brought to light since their time in the way of additional sculptured evidence of the same character. It is indeed a little curious to note the perfect unanimity with which most writers fall back upon the above authors as at once the source of the data they adduce in support of the several theories, and as their final, nay, their only, authority. Now and then one will be found to dissent from some particular bit of evidence as announced by Squier and Davis, or to give a somewhat different turn to the conclusions derivable from the testimony offered by them. But in the main the theories first announced by the authors of "Ancient Monuments," as the result of their study of the mound sculptures, are those that pass current to-day. Particular attention may be called to the deep and lasting impression made by the statements of these authors as to the great beauty and high standard of excellence exhibited by the mound sculptures. Since their time writers appear to be well satisfied to express their own admiration in the terms made use of by Squier and Davis. One might, indeed, almost suppose that recent

writers have not dared to trust to the evidence afforded by the original carvings or their fac-similes, but have preferred to take the word of the authors of the "Ancient Monuments" for beauties which were perhaps hidden from their own eyes.

Following the lead of the authors of the "Ancient Monuments," also, with respect to theories of origin, these carvings of supposed foreign animals are offered as affording incontestible evidence that the Mound-Builders must have migrated from or have had intercourse, direct or indirect, with the regions known to harbor these animals. Were it not, indeed, for the evident artistic similarity between these carvings of supposed foreign animals and those of common domestic forms—a similarity which, as Squier and Davis remark, render them "indistinguishable, so far as material and workmanship are concerned, from an entire class of remains found in the mounds"—the presence of most of them could readily be accounted for through the agency of trade, the far reaching nature of which, even among the wilder tribes, is well understood. Trade, for instance, in the case of an animal like the manatee, found no more than a thousand miles distant from the point where the sculpture was dug up, would offer a possible if not a probable solution of the matter. But independently of the fact that the practically identical character of all the carvings render the theory of trade quite untenable, the very pertinent question arises, why, if these supposed manatee pipes were derived by trade from other regions, have not similar carvings been found in those regions, as, for instance, in Florida and the Gulf States, a region of which the archæology is fairly well known. Primitive man, as is the case with his civilized brother, trades usually out of his abundance; so that not seven, but many times seven, manatee pipes should be found at the center of trade. As it is, the known home of the manatee has furnished no carvings either of the manatee or of anything suggestive of it.

The possibility of the manatee having in past times possessed a wider range than at present seems to have been overlooked. But as a matter of fact the probability that the manatee ever ranged, in comparatively modern times at least, as far north as Ohio without leaving other traces of its presenee than a few sculptured representations at the hands of an ancient people is too small to be entertained.

Nor is the supposition that the Mound-Builders held contemporaneous possession of the country embraced in the range of the animals whose effigies are supposed to have been exhumed from their graves worthy of serious discussion. If true, it would involve the contemporaneous occupancy by the Mound-Builders, not only of the Southern United States but of the region stretching into Southern Mexico, and even, according to the ideas of some authors, into Central and South America, an area which, it is needless to say, no known facts will for a moment justify us in supposing a people of one blood to have occupied contemporaneously.

Assuming, therefore, that the sculptures in question are the work of

the Mound-Builders and are not derived from distant parts through the agency of trade, of which there would appear to be little doubt, and, assuming that the sculptures represent the animals they have been supposed to represent—of which something remains to be said—the theory that the acquaintance of the Mound-Builders with these animals was made in a region far distant from the one to which they subsequently migrated would seem to be not unworthy of attention. It is necessary, however, before advancing theories to account for facts to first consider the facts themselves, and in this case to seek an answer to the question how far the identification of these carvings of supposed foreign animals is to be trusted. Before noticing in detail the carvings supposed by Squier and Davis to represent the manatee, it will be well to glance at the carvings of another animal figured by the same authors which, it is believed, has a close connection with them.

Fig. 4.—Otter. From Ancient Monuments.

Figure 4 is identified by the authors of the "Ancient Monuments" (Fig. 156) as an otter, and few naturalists will hesitate in pronouncing it to be a very good likeness of that animal; the short broad ears, broad head and expanded snout, with the short, strong legs, would seem to belong unmistakably to the otter. Added to all these is the indication of its fish-catching habits. Having thus correctly identified this animal, and with it before them, it certainly reflects little credit upon the zoological knowledge of the authors and their powers of discrimination to refer the next figure (Ancient Monuments, Fig. 157) to the same animal.

Fig. 5.—Otter of Squier and Davis.

Of a totally different shape and physiognomy, if intended as an otter it certainly implies an amazing want of skill in its author. However it is assuredly not an otter, but is doubtless an unfinished or rudely executed ground squirrel, of which animal it conveys in a general way a good idea, the characteristic attitude of this little rodent, sitting

up with paws extended in front, being well displayed. Carvings of small rodents in similar attitudes are exhibited in Stevens's "Flint Chips," p. 428, Figs. 61 and 62. Stevens's Fig. 61 evidently represents the same animal as Fig. 157 of Squier and Davis, but is a better executed carving.

In illustration of the somewhat vague idea entertained by archæologists as to what the manatee is like, it is of interest to note that the carving of a second otter with a fish in its mouth has been made to do duty as a manatee, although the latter animal is well known never to eat fish, but, on the contrary, to be strictly herbivorous. Thus Stevens gives figures of two carvings in his "Flint Chips," p. 429, Figs. 65 and 66, calling them manatees, and says: "In one particular, however, the sculptors of the mound-period committed an error. Although the lamantin is strictly herbivorous, feeding chiefly upon subaqueous plants and littoral herbs, yet upon one of the stone smoking pipes, Fig. 66, this animal is represented with a fish in its mouth." Mr. Stevens apparently preferred to credit the mound sculptor with gross ignorance of the habits of the manatee, rather than to abate one jot or tittle of the claim possessed by the carving to be considered a representation of that animal. Stevens's fish-catching manatee is the same carving given by Dr. Rau, in the Archæological Collection of the United States National Museum, p. 47, Fig. 180, where it is correctly stated to be an otter. This cut, which can scarcely be distinguished from one given by Stevens (Fig. 66), is here reproduced (Fig. 6), together with the second supposed manatee of the latter writer (Fig. 7).

To afford a means of comparison, Fig. 154, from the "Ancient Monu-

Fig. 6.—Otter of Rau; Manatee of Stevens.

Fig. 7.—Manatee of Stevens.

ments" of Squier and Davis, is introduced (Fig. 8). The same figure is also to be found in Wilson's Prehistoric Man, vol. i, p. 476, Fig. 22. Another of the supposed lamantins, Fig. 9, is taken from Squier's article in the Transactions of the American Ethnological Society, vol. ii, p. 188. A bad print of the same wood-cut appears as Fig. 153, p. 251, of the "Ancient Monuments."

It should be noted that the physiognomy of Fig. 6, above given, although unquestionably of an otter, agrees more closely with the several so-called manatees, which are represented without fishes, than with the fish-bearing otter, first mentioned, Fig. 4.

Fig. 6 thus serves as a connecting link in the series, uniting the un-

mistakable otter, with the fish in its mouth, to the more clumsily executed and less readily recognized carvings of the same animal.

It was doubtless the general resemblance which the several specimens of the otters and the so-called manatees bear to each other that led Stevens astray. They are by no means facsimiles one of the other. On the contrary, while no two are just alike, the differences are perhaps

Fig. 8.—Lamantin or sea-cow of Squier and Davis.

not greater than is to be expected when it is considered that they doubtless embody the conceptions of different artists, whose knowledge of the animal, as well as whose skill in carving, would naturally differ widely. Recognizing the general likeness, Stevens perhaps felt that what one was all were. In this, at least, he is probably correct, and

Fig. 9.—Lamantin or sea-cow of Squier.

the following reasons are deemed sufficient to show that, whether the several sculptures figured by one and another author are otters or not, as here maintained, they most assuredly are not manatees. The most important character possessed by the sculptures, which is not found in the manatee, is an external ear. In this particular they all agree. Now, the manatee has not the slightest trace of a pinna or external ear, a small orifice, like a slit, representing that organ. To quote the precise language of Murie in the Proceedings of the London Zoological Society, vol. 8, p. 188: "In the absence of pinna, a small orifice, a line in diameter, into which a probe could be passed, alone represents the

external meatus." In the dried museum specimen this slit is wholly invisible, and even in the live or freshly killed animal it is by no means readily apparent. Keen observer of natural objects, as savage and barbaric man certainly is, it is going too far to suppose him capable of representing an earless animal—earless at least so far as the purposes of sculpture are concerned—with prominent ears. If, then, it can be assumed that these sculptures are to be relied upon as in the slightest degree imitative, it must be admitted that the presence of ears would alone suffice to show that they cannot have been intended to represent the manatee. But the feet shown in each and all of them present equally unquestionable evidence of their dissimilarity from the manatee. This animal has instead of a short, stout fore leg, terminating in flexible fingers or paws, as indicated in the several sculptures, a shapeless paddle-like flipper. The nails with which the flipper terminates are very small, and if shown at all in carving, which is wholly unlikely, as being too insignificant, they would be barely indicated and would present a very different appearance from the distinctly marked digits common to the several sculptures.

Noticing that one of the carvings has a differently shaped tail from the others, the authors of the "Ancient Monuments" attempt to reconcile the discrepancy as follows: "Only one of the sculptures exhibits a flat truncated tail; the others are round. There is however a variety of the lamantin (*Manitus Senigalensis*, Desm.) which has a round tail, and is distinguished as the "round-tailed manitus." (Ancient Monuments, p. 252.) The suggestion thus thrown out means, if it means anything, that the sculpture exhibiting a flat tail is the only one referable to the manatee of Florida and southward, the *M. Americanus*, while those with round tails are to be identified with the so-called "Round-tailed Lamantin," the *M. Senegalensis*, which lives in the rivers of Senegambia and along the coast of Western Africa. It is to be regretted that the above authors did not go further and explain the manner in which they suppose the Mound-Builders became acquainted with an animal inhabiting the West African coast. Elastic as has proved to be the thread upon which hangs the migration theory, it would seem to be hardly capable of bearing the strain required for it to reach from the Mississippi Valley to Africa.

Had the authors been better acquainted with the anatomy of the manatees the above suggestion would never have been made, since the tails of the two forms are, so far as known, almost exactly alike. A rounded tail is, in fact, the first requisite of the genus *Manatus*, to which both the manatees alluded to belong, in distinction from the forked tail of the genus *Halicore*.

Whether the tails of the sculptured manatees be round or flat matters little, however, since they bear no resemblance to manatee tails, either of the round or flat tailed varieties, or, for that matter, to tails of any sort. In many of the animal carvings the head alone engaged the

sculptor's attention, the body and members being omitted entirely, or else roughly blocked out; as, for instance, in the case of the squirrel given above, in which the hind parts are simply rounded off into convenient shape, with no attempt at their delineation. Somewhat the same method was evidently followed in the case of the supposed manatees, only after the pipe cavities had been excavated the block was shaped off in a manner best suited to serve the purpose of a handle. Without, however, attempting to institute further comparisons, two views of a real manatee are here subjoined, which are fac-similes of Murie's admirable photo-lithograph in Trans. London Zoological Society, vol. 8, 1872–'74. A very brief comparison of the supposed manatees, with a modern artistic representation of that animal, will show the irreconcilable differences between them better than any number of pages of written criticism.

FIG. 10.—Manatee (*Manatus Americanus*, Cuv.). Side view.

There would seem, then, to be no escape from the conclusion that the animal sculptures which have passed current as manatees do not really resemble that animal, which is so extraordinary in all its aspects and so totally unlike any other of the animal creation as to render its identification in case it had really served as a subject for sculpture, easy and certain.

FIG. 11.—Manatee (*Manatus Americanus*, Cuv.). Front view.

As the several sculptures bear a general likeness to each other and resemble with considerable closeness the otter, the well known fish-eating proclivities of this animal being shown in at least two of them, it seems highly probable that it is the otter that is rudely portrayed in all these sculptures.

The otter was a common resident of all the region occupied by the Mound-Builders, and must certainly have been well known to them. Moreover, the otter is one of the animals which figures largely in the mythology and folk-lore of the natives of America, and has been adopted in many tribes as their totem. Hence, this animal would seem to be a peculiarly apt subject for embodiment in sculptured form. It matters very little, however, whether these sculptures were intended as

otters or not, the main point in the present connection being that they cannot have been intended as manatees.

Before leaving the subject of the manatee, attention may be called to a curious fact in connection with the Cincinnati Tablet, "of which a wood-cut is given in The Ancient Monuments" (p. 275, Fig. 195). If the reverse side as there shown be compared with the same view as presented by Short in The North Americans of Antiquity, p. 45, or in MacLean's Mound-Builders, p. 107, a remarkable discrepancy between the two will be observed.

FIG. 12.—Cincinnati Tablet. (Back.) From Squire and Davis.

In the former, near the top, is indicated what appears to be a shapeless depression, formless and unmeaning so far as its resemblance to any special object is concerned. The authors remark of this side of the tablet, "The back of the stone has three deep longitudinal grooves, and several depressions, evidently caused by rubbing,—probably produced in sharpening the instrument used in the sculpture." This explanation of the depressions would seem to be reasonable, although it has been disputed, and a "peculiar significance" (Short) attached to this side of the tablet. In Short's engraving, while the front side corresponds closely with the same view given by Squier and Davis, there is a notable difference observable on the reverse side. For the formless depression of the Squier and Davis cut not only occupies a somewhat different position in relation to the top and sides of the tablet, but, as will be seen by reference to the figure, it assumes a distinct form, having in some mysterious way been metamorphosed into a figure which oddly enough suggests the manatee. It does not appear that the attention of archæologists has ever been directed to the fact that such a resemblance exists; nor indeed is the resemblance sufficiently close to justify calling it a veritable manatee. But with the aid of a little imagination it may in a rude way suggest that animal, its earless head and the flipper being the most striking, in fact the only, point of likeness. Conceding that the figure as given by Short affords a rude hint of the manatee, the question is how to account for its presence on this the latest representation of the tablet which, according to Short, Mr. Guest, its owner, pronounces "the first correct representations of the stone." The cast of this tablet in the Smithsonian Institution agrees

more closely with Short's representation in respect to the details mentioned than with that given in the "Ancient Monuments." Nevertheless, if this cast be accepted as the faithful copy of the original it has been supposed to be, the engraving in Short's volume is subject to criticism. In the cast the outline of the figure, while better defined than Squier and Davis represent it to be, is still very indefinite, the outline not only being broken into, but being in places, especially toward the head, indistinguishable from the surface of the tablet into which it insensibly

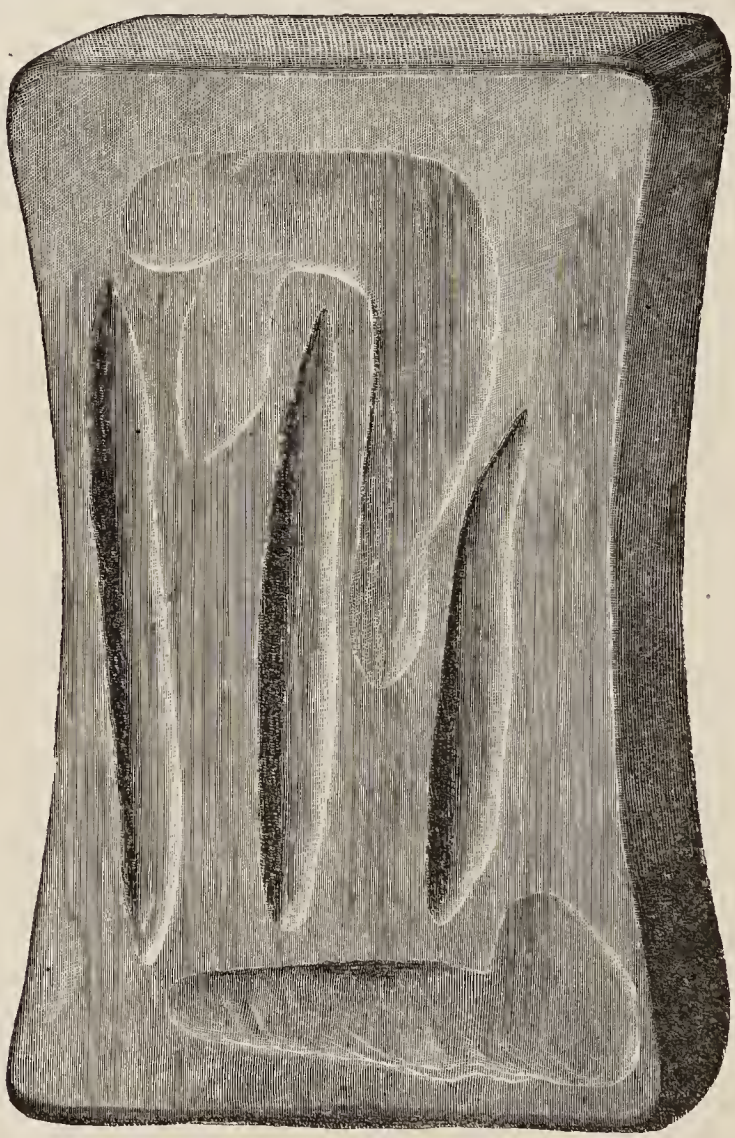


FIG. 13.—Cincinnati Tablet. (Back.) From Short.

grades. In the view as found in Short there is none of this irregularity and indefiniteness of outline, the figure being perfect and standing out clearly as though just from the sculptor's hand. As perhaps on the whole the nearest approach to the form of a manatee appearing on any object claimed to have originated at the hands of the Mound-Builders, and from the fact that artists have interpreted its outline so differently,

this figure, given by the latest commentators on the Cincinnati tablet, is interesting, and has seemed worthy of mention. As, however, the authenticity of the tablet itself is not above suspicion, but, on the contrary, is believed by many archæologists to admit of grave doubts, the subject need not be pursued further here.

TOUCAN.

The *a priori* probability that the toucan was known to the Mound-Builders is, of course, much less than that the manatee was, since no species of toucan occurs farther north than Southern Mexico. Its distant habitat also militates against the idea that the Mound-Builders could have acquired a knowledge of the bird from intercourse with southern tribes, or that they received the supposed toucan pipes by way of trade. Without discussing the several theories to which the toucan pipes have given rise, let us first examine the evidence offered as to the presence in the mounds of sculptures of the toucan.

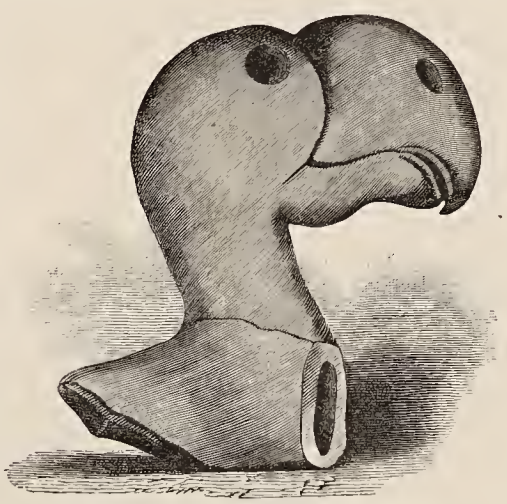


FIG. 14.—Toucan of Squier and Davis.

It is a little perplexing to find at the outset that Squier and Davis, not content with one toucan, have figured three, and these differing from each other so widely as to be referable, according to modern ornithological ideas, to very distinct orders.

The first allusion to the toucan in the Monuments of the Mississippi Valley is found on page 194, where the authors guardedly remark of a bird's head in terra cotta (Fig. 79), "It represents the head of a bird, somewhat resembling the toucan, and is executed with much spirit."

This head is vaguely suggestive of a young eagle, the proportions of the bill of which, until of some age, are considerably distorted. The position of the nostrils, however, and the contour of the mandibles, together with the position of the eyes, show clearly enough that it is a likeness of no bird known to ornithology. It is enough for our present purpose to say that in no particular does it bear any conceivable resemblance to the toucan.

Of the second supposed toucan (Ancient Monuments, p., 260, Fig. 169) here illustrated, the authors remark:

> The engraving very well represents the original, which is delicately carved from a compact limestone. It is supposed to represent the toucan—a tropical bird, and one

not known to exist anywhere within the limits of the United States. If we are not mistaken in supposing it to represent this bird, the remarks made respecting the sculptures of the manitus will here apply with double force.

FIG. 15.—Toucan of Squier and Davis.

This sculpture is fortunately easy of identification. Among several ornithologists, whose opinions have been asked, not a dissenting voice has been heard. The bird is a common crow or a raven, and is one of the most happily executed of the avian sculptures, the nasal feathers, which are plainly shown, and the general contour of the bill being truly corvine. It would probably be practically impossible to distinguish a rude sculpture of a raven from that of a crow, owing to the general resemblance of the two. The proportions of the head here shown are, however, those of the crow, and the question of habitat renders it vastly more likely that the crow was known to the Mound-Builders of Ohio than that the raven was. What possible suggestion of a toucan is to be found in this head it is not easy to see.

Turning to page 266 (Fig. 178) another and very different bird is held up to view as a toucan.

FIG. 16.—Toucan of Squier and Davis.

Squier and Davis remark of this sculpture:

From the size of its bill, and the circumstance of its having two toes before and two behind, the bird intended to be represented would seem to belong to the zygodactylous order—probably the toucan. The toucan (Ramphastos of Lin.) is found on this continent only in the tropical countries of South America.

In contradiction to the terms of their description their own figure, as will be noticed, shows *three* toes in front and two behind, or a total of five, which makes the bird an ornithological curiosity, indeed. How-

ever, as the cast in the Smithsonian collection shows three toes in front and one behind, it is probably safe to assume that the additional hind toe was the result of mistake on the part of the modern artist, so that four may be accepted as its proper quota. The mistake then chargeable to the above authors is that in their discussion they transferred one toe from before and added it behind. In this curious way came their zygodactylous bird.

This same pipe is figured by Stevens in Flint Chips, p. 426, Fig. 5. The wood-cut is a poor one, and exhibits certain important changes, which, on the assumption that the pipe is at all well illustrated by the cast in the Smithsonian, reflects more credit on the artist's knowledge of what a toucan ought to look like than on his fidelity as an exact copyist.

The etchings across the upper surface of the base of the pipe, miscalled fingers, are not only made to assume a hand-like appearance but the accommodating fancy of the artist has provided a roundish object in the palm, which the bird appears about to pick up. The bill, too, has been altered, having become rounded and decidedly toucan-like, while the tail has undergone abbreviation, also in the direction of likeness to the toucan. In short, much that was lacking in the aboriginal artist's conception towards the likeness of a toucan has in this figure been supplied by his modern interpreter.

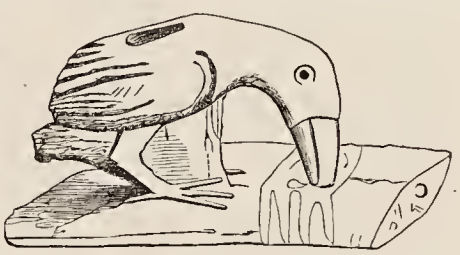


FIG. 17.—Toucan as figured by Stevens.

This cut corresponds with the cast in the Smithsonian collection, in having the normal number of toes, four—three in front and one behind. This departure from the arrangement common to the toucan family, which is zygodactylous, seems to have escaped Stevens's attention. At least he volunteers no explanation of the discrepancy, being, doubtless, influenced in his acceptance of the bird as a toucan by the statements of others.

Wilson follows the cut of Squier and Davis, and represents the bird with five toes, stating that the toucan is "imitated with considerable accuracy." He adds: "The most important deviation from correctness of detail is, it has three toes instead of two before, although the two are correctly represented behind." How Wilson is guided to the belief that the sculptor's mistake consists in adding a toe in front instead of one behind it would be difficult to explain, unless, indeed, he felt the necessity of having a toucan at all hazards. The truth is that, the question of toes aside, this carving in no wise resembles a toucan. Its long legs and proportionally long toes, coupled with the rather long neck and bill, indicate with certainty a wading bird of some kind, and in default of anything that comes nearer, an ibis may be suggested; though if intended by the sculptor as an ibis, candor compels the statement that the ibis family has no reason to feel complimented.

The identification of this sculpture as a toucan was doubtless due less to any resemblance it bears to that bird than to another circumstance connected with it of a rather fanciful nature. As in the case of several others, the bird is represented in the act of feeding, upon what it would be difficult to say. Certainly the four etchings across the base of the pipe bear little resemblance to the human hand. Had they been intended for fingers they would hardly have been made to extend over the side of the pipe, an impossible position unless the back of the hand be uppermost. Yet it was probably just this fancied resemblance to a hand, out of which the bird is supposed to be feeding, that led to the suggestion of the toucan. For, say Squier and Davis, p. 266:

> In those districts (*i. e.*, Guiana and Brazil) the toucan was almost the only bird the aborigines attempted to domesticate. The fact that it is represented receiving its food from a human hand would, under these circumstances, favor the conclusion that the sculpture was designed to represent the toucan.

Rather a slender thread one would think upon which to hang a theory so far-reaching in its consequences.

Nor was it necessary to go as far as Guiana and Brazil to find instances of the domestication of wild fowl by aborigines. Among our North American Indians it was a by no means uncommon practice to capture and tame birds. Roger Williams, for instance, speaks of the New England Indians keeping tame hawks about their dwellings "to keep the little birds from their corn." (Williams's Key into the Language of America, 1643, p. 220.) The Zuñis and other Pueblo Indians keep, and have kept from time immemorial, great numbers of eagles and hawks of every obtainable species, as also turkies, for the sake of the feathers. The Dakotas and other western tribes keep eagles for the same purpose. They also tame crows, which are fed from the hand, as well as hawks and magpies. A case nearer in point is a reference in Lawson to the Congarees of North Carolina. He says, "they are kind and affable, and tame the cranes and storks of their savannas." (Lawson's History of Carolina, p. 51.) And again (p. 53) "these Congarees have an abundance of storks and cranes in their savannas. They take them before they can fly, and breed them as tame and familiar as a dung-hill fowl. They had a tame crane at one of these cabins that was scarcely less than six feet in height."

So that even if the bird, as has been assumed by many writers, be feeding from a human hand, of which fact there is no sufficient evidence, we are by no means on this account driven to the conclusion, as appears to have been believed, that the sculpture could be no other than a toucan.

As in the case of the manatee, it has been thought well to introduce a correct drawing of a toucan in order to afford opportunity for comparison of this very striking bird with its supposed representations from the mounds. For this purpose the most northern representative of the family has been selected as the one nearest the home of the Mound-Builders.

The particulars wherein it differs from the supposed toucans are so many and striking that it will be superfluous to dwell upon them in detail. They will be obvious at a glance.

Thus we have seen that the sculptured representation of three birds, totally dissimilar from each other, and not only not resembling the toucan, but conveying no conceivable hint of that very marked bird, formed the basis of Squier and Davis' speculations as to the presence of the toucan in the mounds. These three supposed toucans have been copied and recopied by later authors, who have accepted in full the remarks and deductions accompanying them.

FIG. 18.—Keel-billed Toucan of Southern Mexico (*Rhamphastos carinatus.*)

At least two exceptions to the last statement may be made. It is refreshing to find that two writers, although apparently accepting the other identifications by Squier and Davis, have drawn the line at the toucan. Thus Rau, in The Archæological Collections of the United States National Museum, pp. 46–47, states that—

> The figure (neither of the writers mentioned appear to have been aware that there was more than one supposed toucan) is not of sufficient distinctness to identify the original that was before the artist's mind, and it would not be safe, therefore, to make this specimen the subject of far-reaching speculations.

Further on he adds, "Leaving aside the more than doubtful toucan, the imitated animals belong, without exception, to the North American fauna." Barber, also, after taking exception to the idea that the supposed toucan carving represents a zygodactylous bird, adds in his article on Mound Pipes, pp. 280–281 (American Naturalist for April, 1882), "It may be asserted with a considerable degree of confidence that no representative of an exclusively exotic fauna figured in the pipe sculptures of the Mound-Builders."

PAROQUET.

The presence of a carving of the paroquet in one of the Ohio mounds has been deemed remarkable on account of the supposed extreme southern habitat of that bird. Thus Squier and Davis remark ("Ancient Monuments of the Mississippi Valley," p. 265, Fig. 172), "Among the most spirited and delicately executed specimens of ancient art found in the mounds, is that of the paroquet here presented." * *

"The paroquet is essentially a southern bird, and though common along the Gulf, is of rare occurrence above the Ohio River." The above language would seem to admit of no doubt as to the fact of the decided resemblance borne by this carving to the paroquet. Yet the bird thus positively identified as a paroquet, upon which identification have, without doubt, been based all the conclusions that have been published concerning the presence of that bird among the mound sculptures is not even distantly related to the parrot family. It has the bill of a raptorial bird, as shown by the distinct tooth, and this, in connection with the well defined cere, not present in the paroquet, and the open nostril, concealed by feathers in the paroquet, places its identity as one of the hawk tribe beyond doubt.

FIG. 19.—Paroquet of Squier and Davis.

In fact it closely resembles several of the carvings figured and identified as hawks by the above authors, as comparison with figures given below will show. The hawks always appear to have occupied a prominent place in the interest of our North American Indians, especially in association with totemic ideas, and the number of sculptured representations of hawks among the mound relics would argue for them a similar position in the minds of the Mound-Builders.

A word should be added as to the distribution of the paroquet. The statement by Squier and Davis that the paroquet is found as far north as the Ohio River would of itself afford an easy explanation of the manner in which the Mound-Builders might have become acquainted with the bird, could their acquaintance with it be proved. But the above authors appear to have had a very incorrect idea of the region inhabited by this once widely spread species. The present distribution, it is true, is decidedly southern, it being almost wholly confined to limited areas within the Gulf States. Formerly, however, it ranged much farther north, and there is positive evidence that it occurred in New York, Pennsylvania, Ohio, Illinois, Indiana, Michigan, and Nebraska. Up to 1835 it was extremely abundant in Southern Illinois, and, as Mr. Ridgway informs the writer, was found there as late as 1861. Specimens are in the Smithsonian collection from points as far north as Chicago and Michigan. Over much of the region indicated the exact nature of its occurrence is not understood, whether resident or a more or less casual visitor. But as it is known that it was found as far north as Pennsylvania in winter it may once have ranged even farther north than the line just indicated, and have been found in Southern Wisconsin and Minnesota.

Occurring, as it certainly did, over most of the mound region, the peculiar habits of the paroquet, especially its vociferous cries and manner

of associating in large flocks, must, it would seem, have made it known to the Mound-Builders. Indeed from the ease with which it is trapped and killed, it very probably formed an article of food among them as it has among the whites and recent tribes of Indians. Probable, however, as it is that the Mound-Builders were well acquainted with the paroquet, there appears to be no evidence of the fact among their works of art.

KNOWLEDGE OF TROPICAL ANIMALS BY MOUND-BUILDERS.

The supposed evidence of a knowledge of tropical animals possessed by the ancient dwellers of the Mississippi Valley which has just been discussed seems to have powerfully impressed Wilson, and in his Prehistoric Man he devotes much space to the consideration of the matter. His ideas on the subject will be understood from the following quotation:

> By the fidelity of the representations of so great a variety of subjects copied from animal life, they furnish evidence of a knowledge in the Mississippi Valley, of the fauna peculiar not only to southern but to tropical latitudes, extending beyond the Isthmus into the southern continent; and suggestive either of arts derived from a foreign source, and of an intimate intercourse maintained with the central regions where the civilization of ancient America attained its highest development: or else indicative of migration, and an intrusion into the northern continent, of the race of the ancient graves of Central and Southern America, bringing with them the arts of the tropics, and models derived from the animals familiar to their fathers in the parent-land of the race. (Vol. 1, p. 475.)

The author subsequently shows his preference for the theory of a migration of the race of the Mound-Builders from southern regions as being on the whole more probable. Wilson does not, however, content himself with the evidence afforded by the birds and animals which have just been discussed, but strengthens his argument by extending the list of supposed exotic forms known to the Mound-Builders in the following words (vol. 1, p. 477):

> But we must account by other means for the discovery of accurate miniature representations of it (*i. e.* the Manatee) among the sculptures of the far-inland mounds of Ohio; and the same remark equally applies to the jaguar or panther, the cougar, the toucan; to the buzzard possibly, and also to the paroquet. *The majority of these animals are not known in the United States; some of them are totally unknown within any part of the North American continent.* (Italics of the present writer.) Others may be classed with the paroquet, which, though essentially a southern bird, and common in the Gulf, does occasionally make its appearance inland; and might possibly become known to the untraveled Mound-Builder among the fauna of his own northern home.

The information contained in the above paragraph relative to the range of some of the animals mentioned may well be viewed with surprise by naturalists. To begin with, the jaguar or panther, by which vernacular names the *Felis onca* is presumably meant, is not only found in Northern Mexico, but extends its range into the United States and appears as far north as the Red River of Louisiana. (See Baird's Mammals of North America.) Hence a sculptured representation of this animal in the mounds, although by no means likely, is not entirely out of the question. However, among the several carvings of the cat family

that have been exhumed from the mounds and made known there is not one which can, with even a fair degree of probability, be identified as this species in distinction from the next animal named, the cougar.

The cougar, to which several of the carvings can with but little doubt be referred, was at the time of the discovery of America and is to-day, where not exterminated by man, a common resident of the whole of North America, including of course the whole of the Mississippi Valley. It would be surprising, therefore, if an animal so striking, and one that has figured so largely in Indian totemism and folk-lore, should not have received attention at the hands of the Mound-Builders.

Nothing resembling the toucan, as has been seen, has been found in the mounds; but, as stated, this bird is found in Southern Mexico.

The buzzard is to-day common over almost the entire United States, and is especially common throughout most of the Mississippi Valley.

As to the paroquet, there seems to be no evidence in the way of carvings to show that it was known to the Mound-Builders, although that such was the case is rendered highly probable from the fact that it lived at their very doors.

It therefore appears that of the five animals of which Wilson states "the majority are not known in the United States," and "some of them are totally unknown within any part of the North American continent," every one is found in North America, and all but one within the limits of the United States, while three were common residents of the Mississippi Valley.

As a further illustration of the inaccurate zoological knowledge to which may be ascribed no small share of the theories advanced respecting the origin of the Mound-Builders, the following illustration may be taken from Wilson, this author, however, being but one of the many who are equally in fault. The error is in regard to the habitat of the conch shell, *Pyrula* (*now Busycon*) *perversa*.

After exposing the blunder of Mr. John Delafield, who describes this shell as unknown on the coasts of North and South America, but as abundant on the coast of Hindostan, from which supposed fact, coupled with its presence in the mounds, he assumes a migration on the part of the Mound-Builders from Southern Asia (Prehistoric Man, vol. 1, p. 219, *ibid*, p. 272), Wilson states.

> No question can exist as to the tropical and marine origin of the large shells exhumed not only in the inland regions of Kentucky and Tennessee, but in the northern peninsula lying between the Ontario and Huron Lakes, or on the still remoter shores and islands of Georgian Bay, at a distance of upwards of three thousand miles from the coast of Yucatan, on the mainland, *the nearest point where the Pyrula perversa is found in its native locality.* (Italics of the present writer.)

Now the plain facts on the authority of Mr. Dall are that the *Busycon* (*Pyrula*) *perversa* is not only found in the United States, but extends along the coast up to Charleston, S. C., with rare specimens as far north as Beaufort, N. C. Moreover, archæologists have usually confounded

this species with the *Busycon carica*, which is of common occurrence in the mounds. The latter is found as far north as Cape Cod. The facts cited put a very different complexion on the presence of these shells in the mounds.

OTHER ERRORS OF IDENTIFICATION.

The erroneous identification of the manatee, the toucan, and of several other animals having been pointed out, it may be well to glance at certain others of the sculptured animal forms, the identification of which

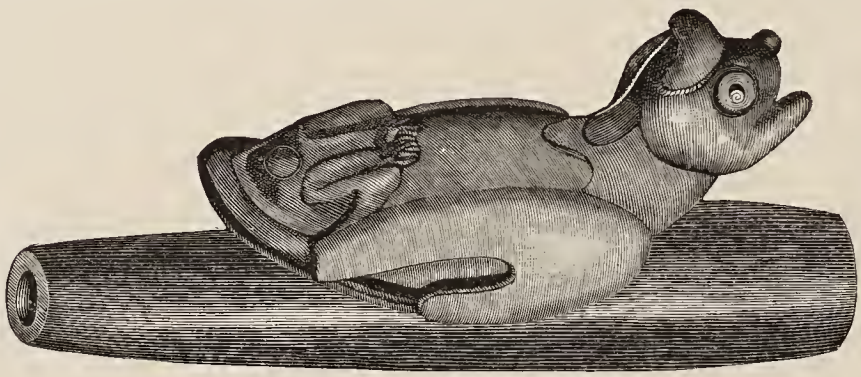


FIG. 20.—"Owl," from Squier and Davis.

by Squier and Davis has passed without dispute, with a view to determining how far the accuracy of these authors in this particular line is to be trusted, and how successful they have been in interpreting the much lauded "fidelity to nature" of the mound sculptures.

FIG. 21.—"Grouse," from Squier and Davis.

Fig. 20 (Squier and Davis, Ancient Monuments of the Mississippi Valley, p. 225, Fig. 123) represents a tube of steatite, upon which is carved, as is stated, "in high relief the figure of an owl, attached with its back to the tube." This carving, the authors state, is "remarkably bold and spirited, and represents the bird with its claws contracted and drawn up, and head and beak elevated as if in an attitude of defense and defiance."

This carving differs markedly from any of the avian sculptures, and probably was not intended to represent a bird at all. The absence of feather etchings and the peculiar shape of the wing are especially noticeable. It more nearly resembles, if it can be said to resemble anything, a bat, with the features very much distorted.

Fig. 21 (Fig. 170 from Squier and Davis) it is stated, "will readily be recognized as intended to represent the head of the grouse."

The cere and plainly notched bill of this carving clearly indicate a hawk, of what species it would be impossible to say.

FIG. 22.—"Turkey Buzzard," from Squier and Davis.

Fig. 22 (Fig. 171 from Squier and Davis) was, it is said, "probably intended to represent a turkey buzzard." If so, the suggestion is a very vague one. The notches cut in the mandibles, as in the case of the

FIG. 23.—"Cherry-bird," from Squier and Davis.

carving of the wood duck (Fig. 168, Ancient Monuments), are perhaps meant for serrations, of which there is no trace in the bill of the buzzard. As suggested by Mr. Ridgway, it is perhaps nearer the cormorant than anything else, although not executed with the detail necessary for its satisfactory recognition.

Fig. 23 (Fig. 173 from Squier and Davis) it is claimed "much resembles the tufted cherry-bird," which is by no means the case, as the bill

bears witness. It may pass, however, as a badly executed likeness of the tufted cardinal grosbeak or red-bird. The same is true of Figs. 174 and 175, which are also said to be "cherry-birds."

Fig. 24 (Fig. 179 from Squier and Davis), of which Squier and Davis say it is uncertain what bird it is intended to represent, is an unmistakable likeness of a woodpecker, and is one of the best executed of the series of bird carvings. To undertake to name the species would be the merest guess-work.

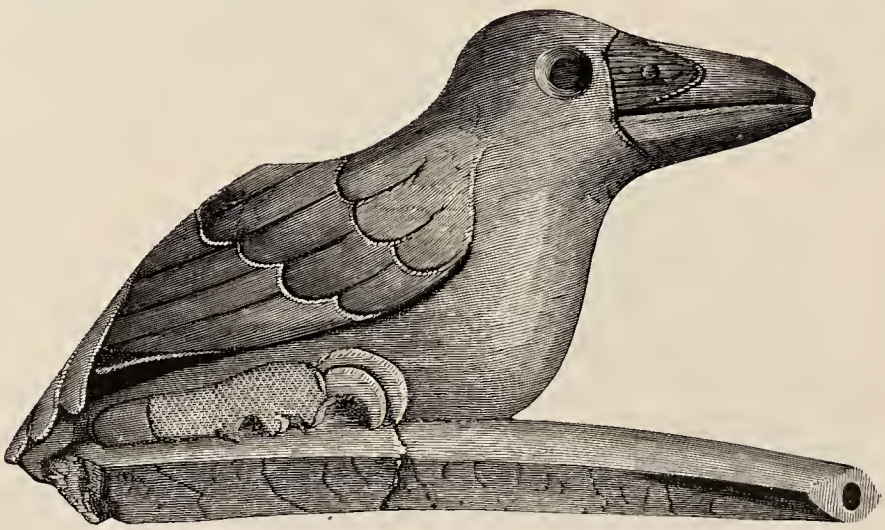


FIG. 24.—Woodpecker, from Squier and Davis.

The heads shown in Fig. 25, which the authors assert "was probably intended to represent the eagle" and "are far superior in point of finish, spirit, and truthfulness to any miniature carving, ancient or modern, which have fallen under the notice of the authors," cannot be identified further than to say they are raptorial birds of some sort, probably not eagles but hawks.

FIG. 25.—"Eagle," from Squier and Davis.

Fig. 26 (Fig. 180 from Squier and Davis), according to the authors, "certainly represents the rattlesnake." It certainly represents a snake, but there is no hint in it of the peculiarities of the rattlesnake; which, indeed, it would be difficult to portray in a rude carving like this without showing the rattle. This is done in another carving, Fig. 196.

The extraordinary terms of praise bestowed by the authors on the heads of the hawks just alluded to, as well as on many other of the sculptured animals, suggest the question whether the illustrations given in the Ancient Monuments afford any adequate idea of the beauty and artistic excellence asserted for the carvings, and so whether they are fair objects for criticism. While of course for the purpose of this paper an

examination of the originals would have been preferable, yet, in as much as the Smithsonian Institution contains casts which attest the general accuracy of the drawings given, and, as the illustrations by other authors afford no higher idea of their artistic execution, it would seem that any criticism applicable to these illustrations must in the main apply to the originals. With reference to the casts in the Smithsonian collection it may be stated that Dr. Rau, who had abundant opportunity to acquaint himself with the originals while in the possession of Mr. Davis, informs the writer that they accurately represent the carvings, and for purposes of study are practically as good as the originals. The latter are, as is well known, in the Blackmore Museum, England.

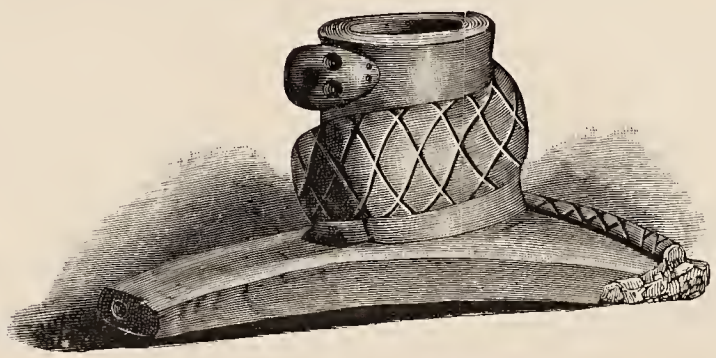


FIG. 26.—"Rattlesnake," from Squier and Davis.

Without going into further detail the matter may be summed up as follows: Of forty-five of the animal carvings, including a few of clay, which are figured in Squier and Davis's work, eleven are left unnamed by the authors as not being recognizable; nineteen are identified correctly, in a general way, as of a wolf, bear, heron, toad, &c.; sixteen are demonstrably wrongly identified, leaving but five of which the species is correctly given.

From this showing it appears that either the above authors' zoological knowledge was faulty in the extreme, or else the mound sculptors' ability in animal carving has been amazingly overestimated. However just the first supposition may be, the last is certainly true.

SKILL IN SCULPTURE OF MOUND-BUILDERS.

In considering the degree of skill exhibited by the mound sculptors in their delineation of the features and characteristics of animals, it is of the utmost importance to note that the carvings of birds and animals which have evoked the most extravagant expressions of praise as to the exactness with which nature has been copied are uniformly those which, owing to the possession of some unusual or salient characteristic, are exceedingly easy of imitation. The stout body and broad flat tail of the beaver, the characteristic physiognomy of the wild cat and panther, so utterly dissimilar to that of other animals, the tufted head and fish-eating habits of the heron, the raptorial bill and claws of the hawk, the rattle of the rattlesnake, are all features which the rudest skill could scarcely fail to portray.

It is by the delineation of these marked and unmistakable features, and not the sculptor's power to express the subtleties of animal characteristics, that enables the identity of a comparatively small number of the carvings to be established. It is true that the contrary has often been asserted, and that almost everything has been claimed for the carvings, in the way of artistic execution, that would be claimed for the best products of modern skill. Squier and Davis in fact go so far in their admiration (Ancient Monuments, p. 272), as to say that, so far as fidelity is concerned, many of them (*i. e.*, animal carvings) deserve to rank by the side of the best efforts of the artist naturalists in our own day—a statement which is simply preposterous. So far, in point of fact, is this from being true that an examination of the series of animal sculptures cannot fail to convince any one, who is even tolerably well acquainted with our common birds and animals, that it is simply impossible to recognize specific features in the great majority of them. They were either not intended to be copies of particular species, or, if so intended, the artist's skill was wholly inadequate for his purpose.

Some remarks by Dr. Coues, quoted in an article by E. A. Barber on Mound Pipes in the American Naturalist for April, 1882, are so apropos to the subject that they are here reprinted. The paragraph is in response to a request to identify a bird pipe:

> As is so frequently the probable case in such matters, I am inclined to think the sculptor had no particular bird in mind in executing his rude carving. It is not necessary, or indeed, permissible, to suppose that particular species were intended to be represented. Not unfrequently the likeness of some marked bird is so good as to be unmistakable, but the reverse is oftener the case; and in the present instance I can make no more of the carving than you have done, excepting that if any particular species may have been in the carver's mind, his execution does not suffice for its determination.

The views entertained by Dr. Coues as to the resemblances of the carvings will thus be seen to coincide with those expressed above. Another prominent ornithologist, Mr. Ridgway, has also given verbal expression to precisely similar views.

So far, therefore, as the carvings themselves afford evidence to the naturalist, their general likeness entirely accords with the supposition that they were not intended to be copies of particular species. Many of the specimens are in fact just about what might be expected when a workman, with crude ideas of art expression, sat down with intent to carve out a bird, for instance, without the desire, even if possessed of the requisite degree of skill, to impress upon the stone the details necessary to make it the likeness of a particular species.

GENERALIZATION NOT DESIGNED.

While the resemblances of most of the carvings, as indicated above, must be admitted to be of a general and not of a special character, it does not follow that their general type was the result of design.

Such an explanation of their general character and resemblances is, indeed, entirely inconsistent with certain well-known facts regarding the mental operations of primitive or semi-civilized man. To the mind of primitive man abstract conceptions of things, while doubtless not entirely wanting, are at best but vaguely defined. The experience of numerous investigators attests how difficult it is, for instance, to obtain from a savage the name of a class of animals in distinction from a particular species of that class. Thus it is easy to obtain the names of the several kinds of bears known to a savage, but his mind obstinately refuses to entertain the idea of a bear genus or class. It is doubtless true that this difficulty is in no small part due simply to the confusion arising from the fact that the savage's method of classification is different from that of his questioner. For, although primitive man actually does classify all concrete things into groups, the classification is of a very crude sort, and has for a basis a very different train of ideas from those upon which modern science is established—a fact which many investigators are prone to overlook. Still there seems to be good ground for believing that the conception of a bird, for instance, in the abstract as distinct from some particular kind or species would never be entertained by a people no further advanced in culture than their various relics prove the Mound-Builders to have been. In his carving, therefore, of a hawk, a bear, a heron, or a fish, it seems highly probable that the mound sculptor had in mind a distinct species, as we understand the term. Hence his failure to reproduce specific features in a recognizable way is to be attributed to the fact that his skill was inadequate to transfer the exact image present in his mind, and not to his intention to carve out a general representative of the avian class.

To carry the imitative idea farther and to suggest, as has been done by writers, that the carver of the Mound-Building epoch sat down to his work with the animal or a model of it before him, as does the accurate zoological artist of our own day, is wholly insupported by evidence derivable from the carvings themselves, and is of too imaginative a character to be entertained. By the above remarks as to the lack of specific resemblances in the animal carvings it is not intended to deny that some of them have been executed with a considerable degree of skill and spirit as well as, within certain limitations heretofore expressed, fidelity to nature. Taking them as a whole it can perhaps be asserted that they have been carved with a skill considerably above the general average of attainments in art of our Indian tribes, but not above the best efforts of individual tribes.

That they will by no means bear the indiscriminate praise they have received as works of art and as exact imitations of nature may be asserted with all confidence.

PROBABLE TOTEMIC ORIGIN.

With reference to the origiu of these animal sculptures many writers appear inclined to the view that they are purely decorative and ornamental in character, *i. e.*, that they are attempts at close imitations of nature in the sense demanded by high art, and that they owe their origin to the artistic instinct alone. But there is much in their general appearance that suggests they may have been totemic in origin, and that whatever of ornamental character they may possess is of secondary importance.

With, perhaps, no exceptions, the North American tribes practiced totemism in one or other of its various forms, and, although it by no means follows that all the carving and etchings of birds or animals by these tribes are totems, yet it is undoubtedly true that the totemic idea is traceable in no small majority of their artistic representations, whatever their form. As rather favoring the idea of the totemic meaning of the carvings, it may be pointed out that a considerable number of the recognizable birds and animals are precisely the ones known to have been used as totems by many tribes of Indians. The hawk, heron, woodpecker, crow, beaver, otter, wild cat, squirrel, rattlesnake, and others, have all figured largely in the totemic divisions of our North American Indians. Their sacred nature too would enable us to understand how naturally pipes would be selected as the medium for totemic representations. It is also known to be a custom among Indian tribes for individuals to carve out or etch their totems upon weapons and implements of the more important and highly prized class, and a variety of ideas, superstitious and other, are associated with the usage; as,

for instanee, in the ease of weapons of war or implements of the chase, to impart greater efficieney to them. The etehing would also serve as a mark of ownership, espeeially where property of certain kinds was regarded as belonging to the tribe or gens and not to the individual. Often, indeed, in the latter case the individual used the totem of his gens instead of the symbol or mark for his own name.

As a theory to aeeount for the number and character of these animal earvings the totemic theory is perhaps as tenable as any. The origin and signifieanee of the earvings may, however, involve many different and distinct ideas. It is eertain that it is a eommon praetiee of Indians to endeavor to perpetuate the image of any strange bird or beast, espeeially when seen away from home, and in order that it may be shown to his friends. As what are deemed the marvellous features of the animal are almost always greatly exaggerated, it is in this way that many of the astonishing produetions notieeable in savage art have originated. Among the Esquimaux this habit is very prominent, and many individuals ean show etehings or carvings of birds and animals exhibiting the most extraordinary eharacters, whieh they stoutly aver and doubtless have eome to believe they have aetually seen.

ANIMAL MOUNDS.

As having, for the purposes of the present paper, a close connection with the animal carvings, another class of remains left by the Mound-Builders—the animal mounds—may next engage attention. As in the case of the carvings, the resemblance of particular mounds to the animals whose names they bear is a matter of considerable interest on account of the theories to which they have given rise.

The conclusion reached with respect to the carvings that it is safe to rely upon their identification only in the case of animals possessed of striking and unique characters or presenting unusual forms and proportions, applies with far greater force to the animal mounds. Perhaps in none of the latter can specific resemblances be found sufficient for their precise determination. So general are the resemblances of one class that it has been an open question among archeologists whether they were intended to represent the bodies and arms of men, or the bodies and wings of birds. Other forms are sufficiently defined to admit of the statement that they are doubtless intended for animals, but without enabling so much as a reasonable guess to be made as to the kind. Of others again it can be asserted that whatever significance they may have had to the race that built them, to the uninstructed eyes of modern investigators they are meaningless and are as likely to have been intended for inanimate as animate objects.

There are many examples among the animal shapes that possess peculiarities affording no hint of animals living or extinct, but which are strongly suggestive of the play of mythologic fancy or of conventional methods of representing totemic ideas. As in the case of the animal carvings, the latter suggestion is perhaps the one that best corresponds with their general character.

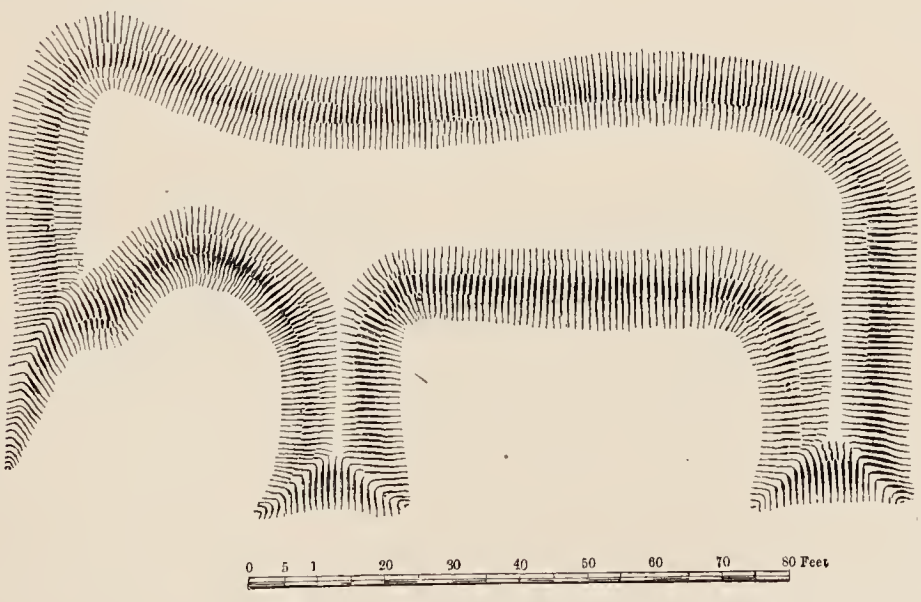
THE "ELEPHANT" MOUND.

By far the most important of the animal mounds, from the nature of the deductions it has given rise to, is the so-called "Elephant Mound," of Wisconsin.

By its discovery and description the interesting question was raised as to the contemporaneousness of the Mound-Builder and the mastodon, an interest which is likely to be further enhanced by the more recent bringing to light in Iowa of two pipes carved in the semblance of the same animal, as well as a tablet showing two figures asserted by some archæologists to have been intended for the same animal.

Although both the mound and pipes have been referred in turn to the peccary, the tapir, and the armadillo, it is safe to exclude these animals from consideration. It is indeed perhaps more likely that the ancient inhabitants of the Upper Mississippi Valley were autoptically acquainted with the mastodon than with either of the above-named animals, owing to their southern habitat.

Referring to the possibility that the mastodon was known to the Mound-Builders, it is impossible to fix with any degree of precision the time of its disappearance from among living animals. Mastodon bones have been exhumed from peat beds in this country at a depth which, so far as is proved by the rate of deposition, implies that the animal may have been alive within five hundred years. The extinction of the mastodon, geologically speaking, was certainly a very recent event, and, as an antiquity of upwards of a thousand or more years has been assigned to some of the mounds, it is entirely within the possibilities that this animal was living at the time these were thrown up, granting even that the time of their erection has been overestimated. It must be admitted, therefore, that there are no inherent absurdities in the belief that the Mound-Builders were acquainted with the mastodon. Granting that they may have been acquainted with the animal, the question arises, what proof is there that they actually were? The answer to this question made by certain archæologists is—the Elephant Mound, of Wisconsin.



Scale 34 feet to the inch.

FIG. 27.—The Elephant Mound, Grant County, Wisconsin.

Recalling the fact that among the animal mounds many nondescript shapes occur which cannot be identified at all, and as many others which have been called after the animals they appear to most nearly resemble, carry out their peculiarities only in the most vague and

general way, it is a little difficult to understand the confidence with which this effigy has been asserted to represent the mastodon; for the mound (a copy of which as figured in the Smithsonian Annual Report for 1872 is here given) can by no means be said to closely represent the shape, proportions, and peculiarities of the animal whose name it bears. In fact, it is true of this, as of so many other of the effigies, the identity of which must be guessed, that the resemblance is of the most vague and general kind, the figure simulating the elephant no more closely than any one of a score or more mounds in Wisconsin, except in one important particular, viz, the head has a prolongation or snout-like appendage, which is its chief, in fact its only real, elephantine character. If this appendage is too long for the snout of any other known animal, it is certainly too short for the trunk of a mastodon. Still, so far as this one character goes, it is doubtless true that it is more suggestive of the mastodon than of any other animal. No hint is afforded of tusks, ears, or tail, and were it not for the snout the animal effigy might readily be called a bear, it nearly resembling in its general make-up many of the so-called bear mounds figured by Squier and Davis from this same county in Wisconsin. The latter, too, are of the same gigantic size and proportions.

If it can safely be assumed that an animal effigy without tusks, without ears, and without a tail was really intended to represent a mastodon, it would be stretching imagination but a step farther to call all the large-bodied, heavy-limbed animal effigies hitherto named bears, mastodons, attributing the lack of trunks, as well as ears, tusks, and tails, to inattention to slight details on the part of the mound artist.

It is true that one bit of good, positive proof is worth many of a negative character. But here the one positive resemblance, the trunk of the supposed elephant, falls far short of an exact imitation, and, as the other features neccssary to a good likeness of a mastodon are wholly wanting, is not this an instance where the negative proof should be held sufficient to largely outweigh the positive?

In connection with this question the fact should not be overlooked that, among the great number of animal effigies in Wisconsin and elsewhere, this is the only one which even thus remotely suggests the mastodon. As the Mound-Builders were in the habit of repeating the same animal form again and again, not only in the same but in widely distant localities, why, if this was really intended for a mastodon, are there no others like it? It cannot be doubted that the size and extraordinary features of this monster among mammals would have prevented it being overlooked by the Mound-Builders when so many animals of inferior interest engaged their attention. The fact that the mound is a nondescript, with no others resembling it, certainly lessens the probability that it was an intentional representation of the mastodon, and increases the likelihood that its slight resemblance was accidental; a slide of earth from the head, for instance, might readily be interpreted by the modern

artist as a trunk, and thus the head be made to assume a shape in his sketch not intended by the original maker. As is well known, no task is more difficult for the artist than to transfer to paper an exact copy of such a subject. Especially hard is it for the artist to avoid unconsciously magnifying or toning down peculiarities according to his own conceptions of what was originally intended, when, as is often the case, time and the elements have combined to render shape and outlines obscure. Archæologic treatises are full of warning lessons of this kind, and the interpretations given to ancient works of art by the erring pencil of the modern artist are responsible for many an ingenious theory which the original would never have suggested. It may well be that future investigations will show that the one peculiarity which distinguishes the so-called Elephant Mound from its fellows is really susceptible of a much more commonplace explanation than has hitherto been given it.

Even if such explanation be not forthcoming, the "Elephant Mound" of Wisconsin should be supplemented by a very considerable amount of corroborative testimony before being accepted as proof positive of the acquaintance of the Mound-Builders with the mastodon.

As regards likeness to the mastodon, the pipes before alluded to, copies of which as given in Barber's articles on Mound Pipes in American Naturalist for April, 1882, Figs. 17 and 18, are here presented, while not entirely above criticism, are much nearer what they have been supposed to be than the mound just mentioned.

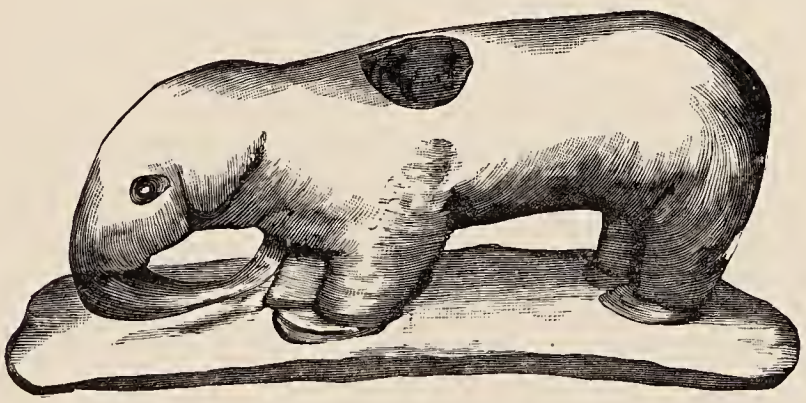


FIG. 28.—Elephant Pipe, Iowa

Of the two, figure 29 is certainly the most natural in appearance, but, if the pipes are intentional imitations of any animal, neither can be regarded as having been intended for any other than the mastodon. Yet, as pointed out by Barber and others, it is certainly surprising that if intended for mastodons no attempt was made to indicate the tusks, which with the trunk constitute the most marked external peculiarities of all the elephant kind. The tusks, too, as affording that most important product in primitive industries, ivory, would naturally be the one peculiarity of all others which the ancient artist would have relied upon to fix the

identity of the animal. It is also remarkable that in neither of these pipes is the tail indicated, although a glance at the other sculptures will show that in the full-length figures this member is invariably

Fig. 29.—Elephant Pipe, Iowa.

shown. In respect to these omissions, the pipes from Iowa are strikingly suggestive of the Elephant Mound of Wisconsin, with the peculiarities of which the sculptor, whether ancient or modern, might almost be supposed to have been acquainted. It certainly must be looked upon as a curious coincidence that carvings found at a point so remote from the Elephant Mound, and presumably the work of other hands, should so closely copy the imperfections of that mound.

In considering the evidence afforded by these pipes of a knowledge of the mastodon on the part of the Mound-Builders, it should be borne in mind that their authenticity as specimens of the Mound-Builders' art has been called seriously in question. Possibly the fact that the same person was instrumental in bringing to light both the pipes has had largely to do with the suspicion, especially when it was remembered that although explorers have been remarkably active in the same region, it has fallen to the good fortune of no one else to find anything conveying the most distant suggestion of the mastodon. As the manner of discovery of such relics always forms an important part of their history, the following account of the pipes as communicated to Mr. Barber by Mr. W. H. Pratt, president of the Davenport Academy (American Naturalist for April, 1882, pp. 275, 276), is here subjoined:

The first elephant pipe, which we obtained (Fig. 17) a little more than a year ago, was found some six years before by an illiterate German farmer named Peter Mare, while planting corn on a farm in the mound region, Louisa County, Iowa. He did not care whether it was elephant or kangaroo; to him it was a curious 'Indian stone,' and nothing more, and he kept it and smoked it. In 1878 he removed to Kansas, and when he left he gave the pipe to his brother-in-law, a farm laborer, who also smoked it. Mr. Gass happened to hear of it, as he is always inquiring about such things, hunted up the man and borrowed the pipe to take photographs and casts from it. He could not buy it. The man said his brother-in-law gave it to him and as it was a curious thing—he wanted to keep it. We were, however, unfortunate, or fortunate,

enough to break it; that spoiled it for him and that was his chance to make some money out of it. He could have claimed any amount, and we would, as in duty bound, have raised it for him, but he was satisfied with three or four dollars. During the first week in April, this month, Rev. Ad. Blumer, another German Lutheran minister, now of Genesee, Illinois, having formerly resided in Louisa County, went down there in company with Mr. Gass to open a few mounds, Mr. Blumer being well acquainted there. They carefully explored ten of them, and found nothing but ashes and decayed bones in any, except one. In that one was a layer of red, hard-burned clay, about five feet across and thirteen inches in thickness at the center, which rested upon a bed of ashes one foot in depth in the middle, the ashes resting upon the natural undisturbed clay. In the ashes, near the bottom of the layer, they found a part of a broken carved stone pipe, representing some bird; a very small beautifully-formed copper 'axe,' and this last elephant pipe (Fig. 18). This pipe was first discovered by Mr. Blumer, and by him, at our earnest solicitation, turned over to the Academy.

It will be seen from the above that the same gentleman was instrumental in bringing to light the two specimens constituting the present supply of elephant pipes.

The remarkable archæologic instinct which has guided the finder of these pipes has led him to even more important discoveries. By the aid of his divining rod he has succeeded in unearthing some of the most remarkable inscribed tablets which have thus far rewarded the diligent search of the mound explorer. It is not necessary to speak in detail of these here, or of the various theories to which they have given rise and support, including that of phonetic writing, further than to call attention to the fact that by a curious coincidence one of the tablets contains, among a number of familiar animals, figures which suggest in a rude way the mastodon again, which animal indeed some archæologists have confidently asserted them to be. The resemblance they bear to that animal is, however, by no means as close as exhibited by the pipe carvings; they are therefore not reproduced here. Both figures differ from the pipes in having tails; both lack trunks, and also tusks.

Archæologists must certainly deem it unfortunate that outside of the Wisconsin mound the only evidence of the co-existence of the Mound-Builder and the mastodon should reach the scientific world through the agency of one individual. So derived, each succeeding carving of the mastodon, be it more or less accurate, instead of being accepted by archæologists as cumulative evidence tending to establish the genuineness of the sculptured testimony showing that the Mound-Builder and mastodon were coeval, will be viewed with ever increasing suspicion.

This part of the subject should not be concluded without allusion to a certain class of evidence, which, although of a negative sort, must be accorded very great weight in considering this much vexed question. It may be asked why, if the Mound-Builders and the mastodon were contemporaneous, have no traces of the ivory tusks ever been exhumed from the mounds? No material is so perfectly adapted for the purposes of carving, an art to which we have seen the Mound-Builders were much addicted, as ivory, both from its beauty and the ease with which it is

worked, to say nothing of the other manifold uses to which it is put, both by primitive and civilized man. The mastodon affords an abundant supply of this highly prized substance, not a particle of which has ever been exhumed from the mounds either in the shape of implements or carving. Yet the exceedingly close texture of ivory enables it to successfully resist the destroying influences of time for very long periods—very long indeed as compared with certain articles which commonly reward the search of the mound explorer.

Among the articles of a perishable nature that have been exhumed from the mounds are large numbers of shell ornaments, which are by no means very durable, as well as the perforated teeth of various animals; sections of deers' horns have also been found, as well as ornaments made of the claws of animals, a still more perishable material. The list also includes the bones of the muskrat and turtle, as of other animals, not only in their natural shape, but carved into the form of implements of small size, as awls, etc. Human bones, too, in abundance, have been exhumed in a sufficiently well preserved state to afford a basis for various theories and speculations.

But of the mastodon, with which these dead Mound-Builders are supposed to have been acquainted, not a palpable trace remains. The tale of its existence is told by a single mound in Wisconsin, which the most ardent supporter of the mastodon theory must acknowledge to be far from a fac-simile, and two carvings and an inscribed tablet, the three latter the finds of a single explorer.

Bearing in mind the many attempts at archæological frauds that recent years have brought to light, archæologists have a right to demand that objects which afford a basis for such important deductions as the coeval life of the Mound-Builder and the mastodon, should be above the slightest suspicion not only in respect to their resemblances, but as regards the circumstances of discovery. If they are not above suspicion, the science of archæology can better afford to wait for further and more certain evidence than to commit itself to theories which may prove stumbling-blocks to truth until that indefinite time when future investigations shall show their illusory nature.

THE "ALLIGATOR" MOUND.

Although of much less importance than the mastodon, a word may be added as to the so-called alligator mound, more especially because the alligator, owing to its southern habitat, is not likely to have been known to the Mound-Builders of Ohio. That it may have been known to them either through travel or hearsay is of course possible. A copy of the mound from the "Ancient Monuments" is subjoined.

The alligator mound was described under this name for no other reason

than beeause it was known in the vicinity as such, this designation having been adopted by Squier and Davis, as they frankly say, "for want of a better," adding "although the figure bears as close a resemblanee to the lizard as any other reptile." (Ancient Monuments, p. 99.)

In truth it bears a superficial likeness to almost any long-tailed animal which has the power of eurling its tail—which the alligator has not—as, for instance, the opossum. It is, however, the merest guess-work to attempt to eonfine its resemblances to any particular animal. Nevertheless reeent writers have described this as the "alligator mound" without suggesting a word of doubt as to its want of positive resemblanee to that saurian.

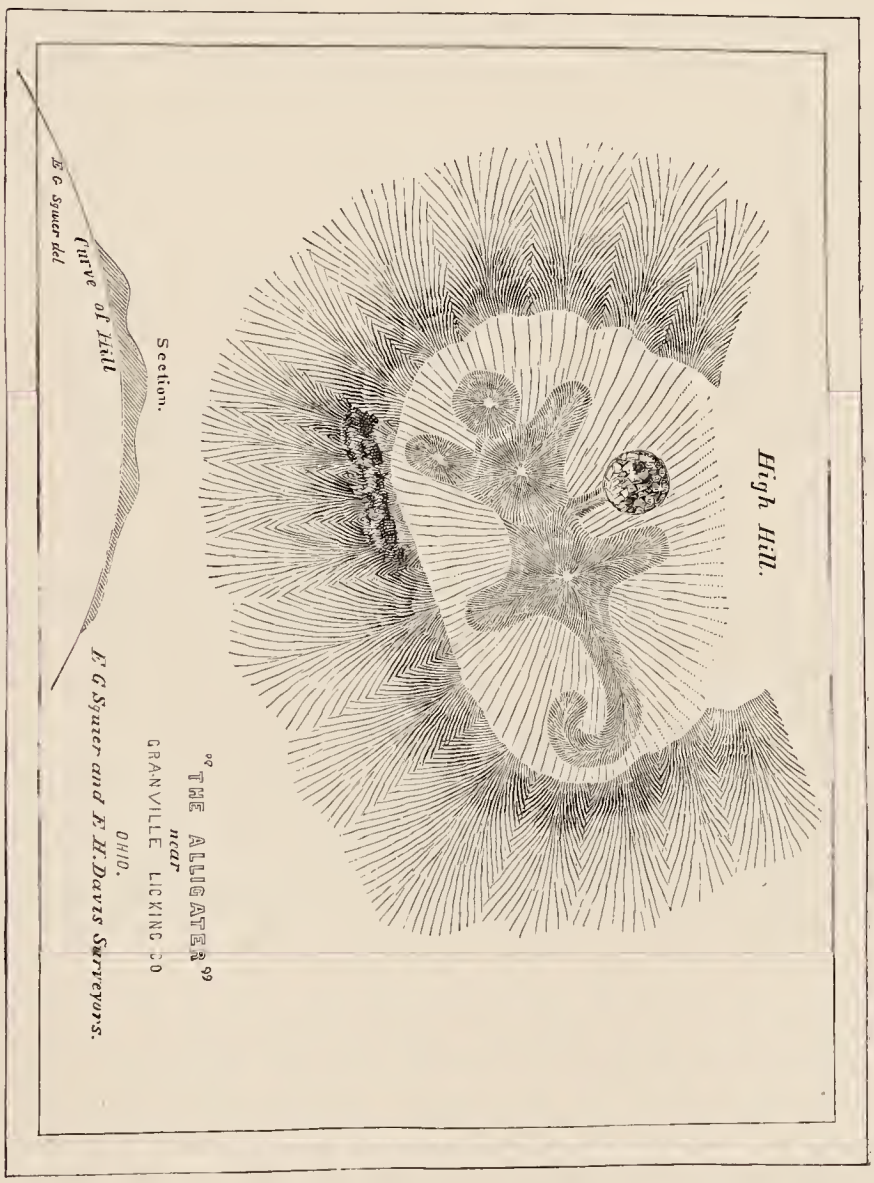


FIG. 30.—"Alligator" Mound.

HUMAN SCULPTURES.

The conclusion reached in the foregoing pages that the animal sculptures are not "exact and faithful copies from nature," but are imitations of a general rather than of a special character, such as comport better with the state of art as developed among certain of the Indian tribes than among a people that has achieved any notable advance in culture is important not only in its bearing on the questions previously noticed in this paper, but in its relation to another and highly interesting class of sculptures.

If a large proportion of the animal carvings are so lacking in artistic accuracy as to make it possible to identify positively only the few possessing the most strongly marked characters, how much faith is to be placed in the ability of the Mound sculptor to fix in stone the features and expressions of the human countenance, infinitely more difficult subject for portrayal as this confessedly is?

That Wilson regards the human sculptures as affording a basis for sound ethnological deductions is evident from the following paragraph, taken from Prehistoric Man, vol. 1, p. 461:

> Alike from the minute accuracy of many of the sculptures of animals, hereafter referred to, and from the correspondence to well known features of the modern Red Indian suggested by some of the human heads, these minature portraits may be assumed, with every probability, to include faithful representations of the predominant physical features of the ancient people by whom they were executed.

Short, too, accepting the popular idea that they are faithful and recognizable copies from nature, remarks in the North Americans of Antiquity, p. 98, *ibid.*, p. 187:

> There is no reason for believing that the people who wrought stone and clay into perfect effigies of animals have not left us sculptures of their own faces in the images exhumed from the mounds;" and again, "The perfection of the animal representations furnish us the assurance that their sculptures of the human face were equally true to nature.

Squier and Davis also appear to have had no doubt whatever of the capabilities of the Mound-Builders in the direction of human portraiture. They are not only able to discern in the sculptured heads niceties of expression sufficient for the discrimination of the sexes, but, as well, to enable them to point out such as are undoubtedly ancient and the work of the Mound-Builders, and those of a more recent origin, the product of the present Indians. Their main criterion of origin is, apparently, that all of fine execution and finish were the work of the Mound sculptors, and those roughly done and "immeasurably inferior to the relics of the mounds," to use their own words, were the handicraft of the tribes found in the country by the whites. Conclusions so derived, it may strike some, are open to criticism, however well suited they may be to meet the necessities of preconceived theories.

After discussing in detail the methods of arranging the hair, the paint lines, and tattooing, the features of the human carvings, Squier

and Davis arrive at the conclusion that the "physiological characteristics of these heads do not differ essentially from those of the great American family."

Of later writers some agree with Squier and Davis in believing the type illustrated by these heads to be Indian; others agree rather with Wilson, who dissents from the view expressed by Squier and Davis, and, in conformity with the predilections visible throughout his work, is of the opinion that the Mound-Builders were of a distinct type from the North American Indian, and that "the majority of sculptured human heads hitherto recovered from their ancient depositories do not reproduce the Indian features." (Wilson's Prehistoric Man, vol. 1, p. 469.) Again, Wilson says that the diversity of type found among the human sculptures "proves that the Mound-Builders were familiar with the American Indian type, but nothing more."—*Ibid, p.* 469.

The varying type of physiognomy represented by these heads would better indicate that their resemblances are the result of accident rather than of intention. For the same reason that the sculptured animals of the same species display great differences of form and expression, according to the varying skill of the sculptors or the unexacting demands made by a rude condition of art, so the diversified character of the human faces is to be ascribed, not to the successful perpetuation in stone by a master hand of individual features, but simply to a want of skill on the part of the sculptor. The evidence afforded by the animal sculptures all tends to the conclusion that exact individual portraiture would have been impossible to the mound sculptor had the state of culture he lived in demanded it; the latter is altogether improbable. A glance at the above quotations will show that it is the assumed fidelity to nature of the animal carvings and their fine execution which has been relied upon in support of a similar claim for the human sculptures. As this claim is seen to have but slight basis in fact the main argument for asserting the human sculptures to be faithful representations of physical features, and to embody exact racial characters falls to the ground, and it must be admitted as in the last degree improbable that the art of the mound sculptor was adequate for the task of accurate human portraiture. To base important ethnologic deductions upon the evidence afforded by the human sculptures in the present state of our knowledge concerning them would seem to be utterly unscientific and misleading.

Copies of several of the heads as they appear in "Ancient Monuments" (pp. 244–247) are here subjoined to show the various types of physiognomy illustrated by them:

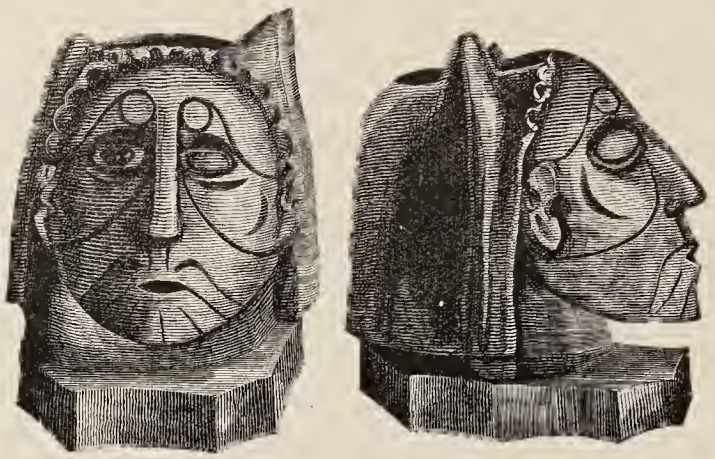


FIG. 31.

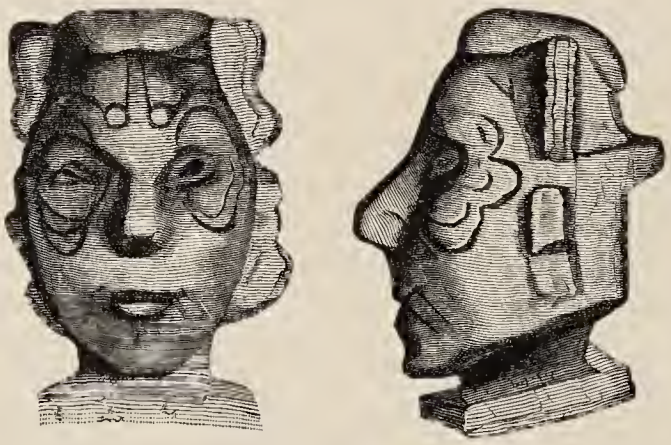


FIG. 32.

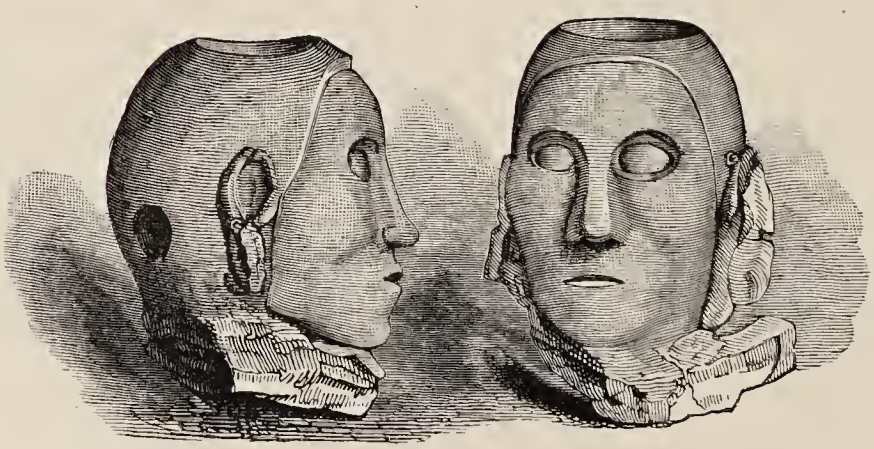


FIG. 33.

Human Carvings from the Mounds.

FIG. 34.

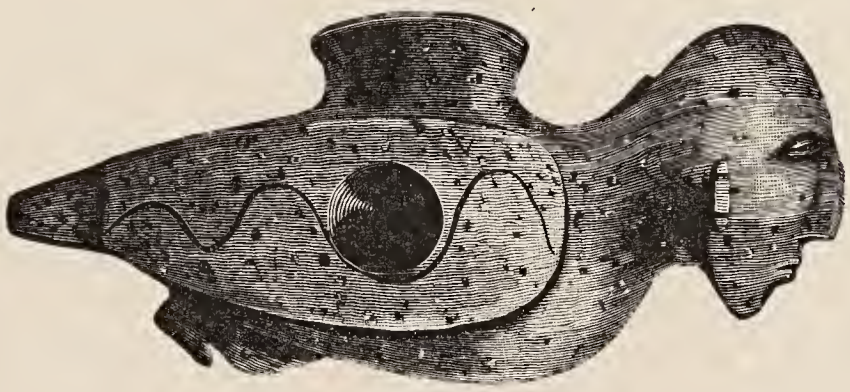


FIG. 35.

Human Carvings from the Mounds.

Could the many other stone and terra-cotta sculptures of the human face which have been ascribed to the Mound-Builders be reproduced here it would be seen that the specimens illustrated above are among the very best. In not a few, traces of the grotesque are distinctly visible, and there is little in their appearance to suggest that they had a different origin or contain a deeper meaning than similar productions found among present Indians. As each of the many carvings differ more or less from every other, it will at once be perceived that the advocates of different theories can readily find in the series abundant testimony in support of any and all assumptions they may choose to advance.

INDIAN AND MOUND-BUILDERS' ART COMPARED.

Turning from special illustrations of the artistic skill of the Mound-Builders, brief attention may be paid to their art in its more general features, and as compared with art as found among our Indian tribes.

Among some of the latter the artistic instinct, while deriving its characteristic features, as among the Mound-Builders, from animated nature, exhibits a decided tendency towards the production of conventional forms, and often finds expression in creations of the most grotesque and imaginative character.

While this is true of some tribes it is by no means true of all, nor is it true of all the art products of even those tribes most given to conventional art. But even were it true in its broadest terms, it is more than doubtful if the significance of the fact has not been greatly overestimated. Some authors indeed seem to discern in the introduction of the grotesque element and the substitution of conventional designs of animals for a more natural portrayal, a difference sufficient to mark, not distinct eras of art culture merely, but different races with very different modes of art expression.

To trace the origin of art among primitive peoples, and to note the successive steps by which decorative art grew from its probable origin in the readily recognized adornments of nature and in the mere "accidents of manufacture," as they have been termed, would be not only interesting but highly instructive. Such a study should afford us a clew to the origin and significance of conventional as contrasted with imitative art.

The natural process of the evolution of art would seem to be from the purely imitative to the conventional, the tendency being for artistic expression of a partially or wholly imaginative character to supplant or supplement the imitative form only in obedience to external influences, especially those of a religious or superstitious kind. In this connection it is interesting to note that even among tribes of the Northwest, the Haidahs, for instance, whose carvings or paintings of birds and animals are almost invariably treated in a manner so highly conventional or are so distorted and caricatured as to be nearly or quite unrecognizable, it is still some natural object, as a well known bird or animal, that underlies and gives primary shape to the design. However highly conventionalized or grotesque in appearance such artistic productions may be, evidences of an underlying imitative design may always be detected; proof, seemingly, that the conventional is a later stage of art superimposed upon the more natural by the requirements of mythologic fancies.

As it is with any particular example of savage artistic fancy, so is it with the art of certain tribes as a whole. Nor does it seem possible

that the growth of the religious or mythologic sentiment has so far preceded or outgrown the development of art as to have had from the first a dominating influence over it, and that the art of such tribes as most strongly show its effect has never had what may be termed its natural phase of development, but has reached the conventional stage without having passed through the intermediate imitative era.

It is more natural to suppose, so far, at least as the North American Indians are concerned, that the road to conventionalism has always led through imitation.

The argument, therefore, that because a tribe or people is less given than another to conventional methods of art, it therefore must necessarily be in a higher stage of culture, is entitled to much less weight than it has sometimes received. Squier and Davis, for instance, referring to the Mound-Builders, state that "many of these (*i. e.*, sculptures) exhibit a close observance of nature such as we could only expect to find among a people considerably advanced in the minor arts, and to which the elaborate and laborious, but usually clumsy and ungraceful, not to say unmeaning, productions of the savage can claim but a slight approach."

It is clearly not the intention of the above authors to claim an entire absence of the grotesque method of treatment in specimens of the Mound-Builder's art, since elsewhere they call attention to what appears to be a caricature of the human face, as well as to the disproportionate size of the heads of many of the animal carvings. Not only are the heads of many of the carvings of disproportionate size, which, in instances has the effect of actual distortion, but in not a few of the sculptures nature, instead of being copied, has been trifled with and birds and animals show peculiarities unknown to science and which go far to prove that the Mound-Builders, however else endowed, possessed lively imaginations and no little creative fancy.

Decided traces of conventionalism also are to be found in many of the animal carvings, and the method of indicating the wings and feathers of birds, the scales of the serpent, &c., are almost precisely what is to be observed in modern Indian productions of a similar kind.

Few and faint as are these tendencies towards caricaturing and conventionalizing as compared with what may be noted in the artistic productions of the Haidahs, Chinooks, and other tribes of the Northwest, they are yet sufficient to show that in these particulars no hard and fast line can be drawn between the art of the Indian and of the Mound-Builder.

As showing how narrow is the line that separates the conventional and imitative methods of art, it is of interest to note that among the Esquimaux the two stages of art are found flourishing side by side. In their curious masks, carved into forms the most quaint and grotesque, and in many of their carvings of animals, partaking as they do of a half human, half animal character, we have abundant evidence of what authors have characterized as savage taste in sculpture. But

the same tribes execute carvings of animals, as seals, sea-lions, whales, bears, &c., which, though generally wanting in the careful modeling necessary to constitute fine sculpture, and for absolute specific resemblance, are generally recognizable likenesses. Now and then indeed is to be found a carving which is noteworthy for spirited execution and faithful modeling. The best of them are far superior to the best executed carvings from the mounds, and are much worthier objects for comparison with modern artistic work.

As deducible from the above premises it may be observed that, while the state of art among primitive peoples as exemplified by their artistic productions may be a useful index in determining their relative position in the scale of progress, unless used with caution and in connection with other and more reliable standards of measurement it will lead to very erroneous conclusions. If, for instance, skill and ingenuity in the art of carving and etching be accepted as affording a proper idea of a people's progress in general culture, the Esquimaux of Alaska should be placed in the front rank of American tribes, a position needless to say which cannot be accorded them from more general considerations. On the other hand, while the evidences of artistic skill left by the Iroquoian tribes are in no way comparable to the work produced by the Esquimaux, yet the former have usually been assigned a very advanced position as compared with other American tribes.

GENERAL CONCLUSIONS.

The more important conclusions reached in the foregoing paper may be briefly summed up as follows:

That of the carvings from the mounds which can be identified there are no representations of birds or animals not indigenous to the Mississippi Valley.

And consequently that the theories of origin for the Mound Builders suggested by the presence in the mounds of carvings of supposed foreign animals are without basis.

Second. That a large majority of the carvings, instead of being, as assumed, exact likenesses from nature, possess in reality only the most general resemblance to the birds and animals of the region which they were doubtless intended to represent.

Third. That there is no reason for believing that the masks and sculptures of human faces are more correct likenesses than are the animal carvings.

Fourth. That the state of art-culture reached by the Mound Builders, as illustrated by their carvings, has been greatly overestimated.

SMITHSONIAN INSTITUTION——BUREAU OF ETHNOLOGY.

NAVAJO SILVERSMITHS.

BY

Dr. WASHINGTON MATTHEWS, U. S. A.

ILLUSTRATIONS.

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NAVAJO SILVERSMITHS.

By Washington Matthews.

Among the Navajo Indians there are many smiths, who sometimes forge iron and brass, but who work chiefly in silver. When and how the art of working metals was introduced among them I have not been able to determine; but there are many reasons for supposing that they have long possessed it; many believe that they are not indebted to the Europeans for it. Doubtless the tools obtained from American and Mexican traders have influenced their art. Old white residents of the Navajo country tell me that the art has improved greatly within their recollection; that the ornaments made fifteen years ago do not compare favorably with those made at the present time; and they attribute this change largely to the recent introduction of fine files and emery-paper. At the time of the Conquest the so-called civilized tribes of Mexico had attained considerable skill in the working of metal, and it has been inferred that in the same period the sedentary tribes of New Mexico also wrought at the forge. From either of these sources the first smiths among the Navajos may have learned their trade; but those who have seen the beautiful gold ornaments made by the rude Indians of British Columbia and Alaska, many of whom are allied in language to the Navajos, may doubt that the latter derived their art from a people higher in culture than themselves.

The appliances and proeesses of the smith are much the same among the Navajos as among the Pueblo Indians. But the Pueblo artisan, living in a spacious house, builds a permanent forge on a frame at such a height that he can work standing, while his less fortunate Navajo *confrère*, dwelling in a low hut or shelter, which he may abandon any day, eonstructs a temporary forge on the ground in the manner hereafter deseribed. Notwithstanding the greater disadvantages under which the latter labors, the ornaments made by his hand are generally eoneeded to be equal or even superior to those made by the Pueblo Indian.

A large majority of these savage smiths make only such simple articles as buttons, rosettes, and braeelets; those who make the more elaborate articles, such as powder-chargers, round beads (Pl. XVI), tobacco cases, belts, and bridle ornaments are few. Tobacco cases, made in the shape of an army canteen, such as that represented in

Fig. 6, are made by only three or four men in the tribe, and the design is of very recent origin.

Their tools and materials are few and simple; and rude as the results of their labor may appear, it is surprising that they do so well with such imperfect appliances, which usually consist of the following articles: A forge, a bellows, an anvil, crucibles, molds, tongs, scissors, pliers, files, awls, cold-chisels, matrix and die for molding buttons, wooden implement used in grinding buttons, wooden stake, basin, charcoal, tools and materials for soldering (blow-pipe, braid of cotton rags soaked in grease, wire, and borax), materials for polishing (sand-paper, emery-paper, powdered sandstone, sand, ashes, and solid stone), and materials for whitening (a native mineral substance—almogen—salt and water). Fig. 1, taken from a photograph, represents the complete shop of a silversmith, which was set up temporarily in a summer lodge or *hogan*, near Fort Wingate. Fragments of boards, picked up around the fort, were used, in part, in the construction of the *hogan*, an old raisin-box was made to serve as the curb or frame of the forge, and these things detracted somewhat from the aboriginal aspect of the place.

A forge built in an outhouse on my own premises by an Indian silversmith, whom I employed to work where I could constantly observe him, was twenty-three inches long, sixteen inches broad, five inches in height to the edge of the fire-place, and the latter, which was bowl-shaped, was eight inches in diameter and three inches deep. No other Navajo forge that I have seen differed materially in size or shape from this. The Indian thus constructed it: In the first place, he obtained a few straight sticks—four would have sufficed—and laid them on the ground to form a frame or curb; then he prepared some mud, with which he filled the frame, and which he piled up two inches above the latter, leaving the depression for the fire-place. Before the structure of mud was completed he laid in it the wooden nozzle of the bellows, where it was to remain, with one end about six inches from the fire-place, and the other end projecting about the same distance beyond the frame; then he stuck into the nozzle a round piece of wood, which reached from the nozzle to the fire-place, and when the mud work was finished the stick was withdrawn, leaving an uninflammable tweer. When the structure of mud was completed a flat rock about four inches thick was laid on at the head of the forge—the end next to the bellows—to form a back to the fire, and lastly the bellows was tied on to the nozzle, which, as mentioned above, was built into the forge, with a portion projecting to receive the bellows. The task of constructing this forge did not occupy more than an hour.

A bellows, of the kind most commonly used, consists of a tube or bag of goatskin, about twelve inches in length and about ten inches in diameter, tied at one end to its nozzle and nailed at the other to a circular disk of wood, in which is the valve. This disk has two arms: one above for a handle and the other below for a support. Two or more

OBJECTS IN SILVER.

rings or hoops of wood are placed in the skin-tube to keep it distended, while the tube is constricted between the hoops with buckskin thongs, and thus divided into a number of compartments, as shown in Pl. XVII. The nozzle is made of four pieces of wood tied together and rounded on the outside so as to form a cylinder about ten inches long and three inches in diameter, with a quadrangular hole in the center about one inch square. The bellows is worked by horizontal movements of the arm. I have seen among the Navajos one double-chambered bellows with a sheet-iron tweer. This bellows was about the same size as the single chambered one described above. It was also moved horizontally, and by means of an iron rod passing from one end to the other and attached to the disks, one chamber was opened at the same time that the other was closed, and *vice versa*. This gave a more constant current of air than the single-chambered implement, but not as steady a blast as the bellows of our blacksmiths. Such a bellows, too, I have seen in the Pueblo of Zuñi.

For an anvil they usually use any suitable piece of iron they may happen to pick up, as for instance an old wedge or a large bolt, such as the king-bolt of a wagon. A wedge or other large fragment of iron may be stuck in the ground to steady it. A bolt is maintained in position by being driven into a log. Hard stones are still sometimes used for anvils and perhaps they were, at one time, the only anvils they possessed.

Crucibles are made by the more careful smiths of clay, baked hard, and they are nearly the same shape as those used by our metallurgists, having three-cornered edges and rounded bottoms. They are usually about two inches in every dimension.

Fig. 1, Pl. XVIII represents one of ordinary shape and size, which I have in my collection. The Navajos are not good potters; their earthenware being limited to these crucibles and a few unornamented water-jars; and it is probably in consequence of their inexperience in the ceramic art that their crucibles are not durable. After being put in the fire two or three times they swell and become very porous, and when used for a longer time they often crack and fall to pieces. Some smiths, instead of making crucibles, melt their metal in suitable fragments of Pueblo pottery, which may be picked up around ruins in many localities throughout the Navajo country or purchased from the Pueblo Indians.

The moulds in which they cast their ingots, cut in soft sandstone with a home-made chisel, are so easily formed that the smith leaves them behind when he moves his residence. Each mould is cut approximately in the shape of the article which is to be wrought out of the ingot cast in it, and it is greased with suet before the metal is poured in. In Figs. 2 and 3, Pl. XVIII, are represented pieces of sand-stone, graven for molds, now in my possession. The figures are one-third the dimensions of the subjects. In the middle cavity or mould shown in Fig. 2, Pl. XVIII, was cast the ingot from which was wrought the arrow-shaped

handle of the powder-charger shown in Pl. XIX; in the lower cavity depicted in the same figure was moulded the piece from which the bowl of this charger was formed. The circular depression, delineated in the lower right corner of Fig. 3, Pl. XVIII, gave form to the ingot from which the sides of the canteen-shaped tobacco-case (Fig. 6) was made.

Tongs are often made by the Navajo silversmiths. One of these which I saw had a U-shaped spring joint, and the ends were bent at right angles downwards, so as more effectually to grasp the flat-sided crucible. Often nippers or scissors are used as tongs.

Ordinary scissors, purchased from the whites, are used for cutting their metal after it is wrought into thin plates. The metal saw and metal shears do not seem as yet to have been imported for their benefit. Some of the more poorly provided smiths use their scissors also for tongs, regardless or ignorant of consequences, and when the shears lose their temper and become loose-jointed and blunt, the efforts of the Indian to cut a rather thick plate of silver are curious to see. Often, then, one or two bystanders are called to hold the plate in a horizontal position, and perhaps another will be asked to hold the points of the scissors to keep them from spreading. Scissors are sometimes used as dividers, by being spread to the desired distance and held in position by being grasped in the hand. By this means I have seen them attempt to find centers, but not to describe circles. It is probable that had they trusted to the eye they might have found their centers as well.

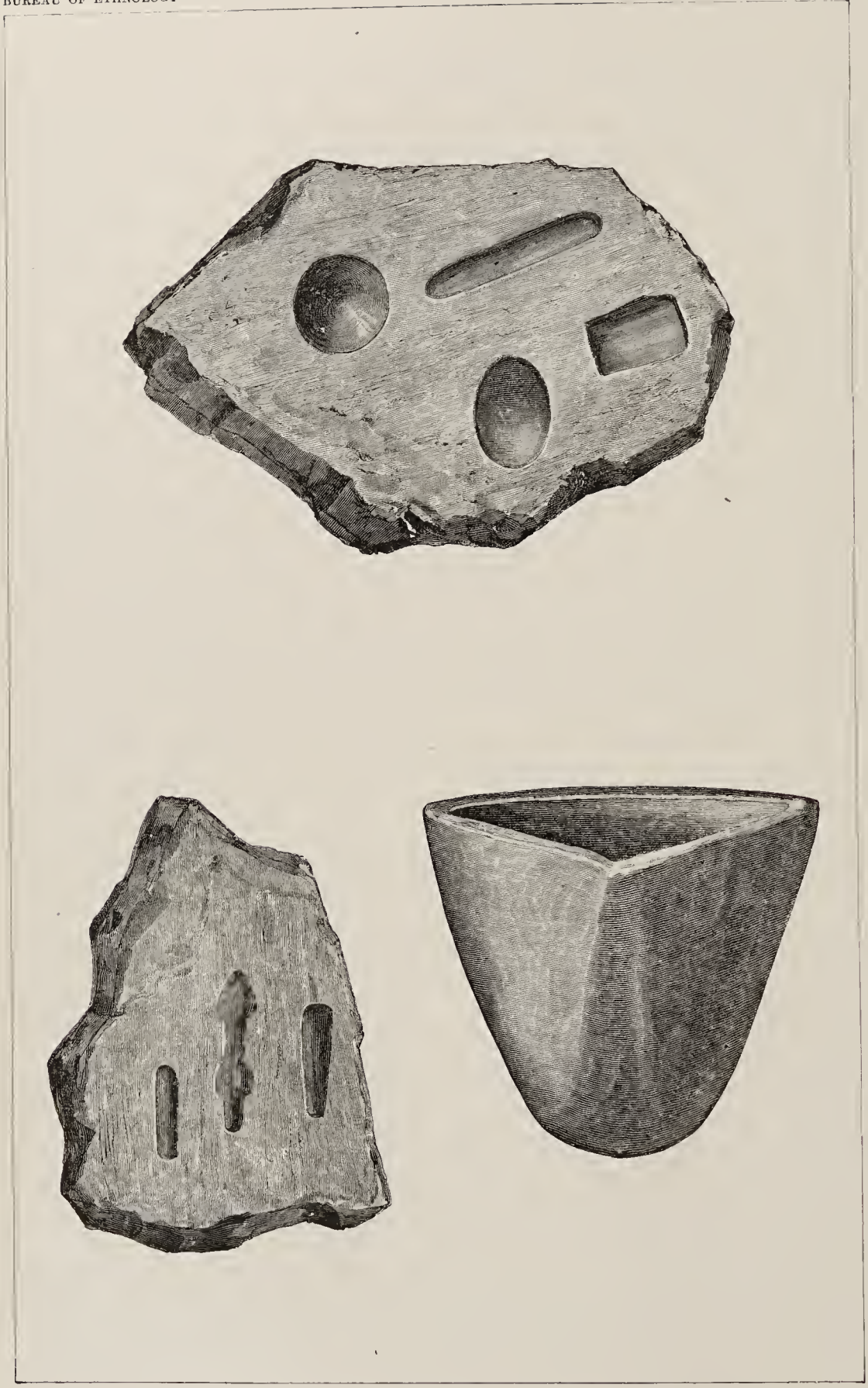
Their iron pliers, hammers, and files they purchase from the whites. Pliers, both flat-pointed and round-pointed, are used as with us. Of files they usually employ only small sizes, and the varieties they prefer are the flat, triangular, and rat-tail. Files are used not only for their legitimate purposes, as with us, but the shanks serve for punches and the points for gravers, with which figures are engraved on silver.

The Indians usually make their own cold-chisels. These are not used where the scissors and file can be conveniently and economically employed. The re-entrant rectangles on the bracelet represented in Fig. 4, Pl. XIX, were cut with a cold-chisel and finished with a file.

Awls are used to mark figures on the silver. Often they cut out of paper a pattern, which they lay on the silver, tracing the outline with an awl. These tools are sometimes purchased and sometimes made by the Indians. I have seen one made from a broken knife which had been picked up around the fort. The blade had been ground down to a point.

Metallic hemispheres for beads and buttons are made in a concave matrix by means of a round-pointed bolt which I will call a die. These tools are always made by the Indians. On one bar of iron there may be many matrices of different sizes; only one die fitting the smallest concavity, is required to work the metal in all. In the picture of the smithy (Pl. XVII, in the right lower corner beside the tin-plate), a piece of an old horse-shoe may be seen in which a few matrices have been worked, and, beside it, the die used in connection with the matrices.

WORKSHOP OF NAVAJO SILVERSMITH.



CRUCIBLE, AND SANDSTONE MOLDS FOR SHAPING SILVER OBJECTS.

A little instrument employed in levelling the edges of the metallic hemispheres, is rude but effective. In one end of a cylinder of wood, about three or four inches long, is cut a small roundish cavity of such a size that it will hold the hemisphere tightly, but allow the uneven edges to project. The hemisphere is placed in this, and then rubbed on a flat piece of sandstone until the edges are worn level with the base of the wooden cylinder. The uses of the basin and the wooden stake are described further on.

Their method of preparing charcoal is much more expeditious than that usually employed by our charcoal-burners, but more wasteful; wood, however, need not yet be economized on the juniper-covered *mesas* of New Mexico. They build a large fire of dry juniper, and when it has ceased to flame and is reduced to a mass of glowing coals, they smother it well with earth and leave it to cool. If the fire is kindled at sunset, the charcoal is ready for use next morning.

The smith makes his own blow-pipe, out of brass, usually by beating a piece of thick brass wire into a flat strip, and then bending this into a tube. The pipe is about a foot long, slightly tapering and curved at one end; there is no arrangement for retaining the moisture proceeding from the mouth. These Indians do not understand our method of making an air chamber of the mouth; they blow with undistended cheeks, hence the current of air directed on the flame is intermitting. The flame used in soldering with the blow-pipe is derived from a thick braid of cotton rags soaked in mutton suet or other grease. Their borax is purchased from the whites, and from the same source is derived the fine wire with which they bind together the parts to be soldered. I have been told by reliable persons that it is not many years since the Navajos employed a flux mined by themselves in their own country; but, finding the pure borax introduced by the traders to be much better, they gradually abandoned the use of the former substance.

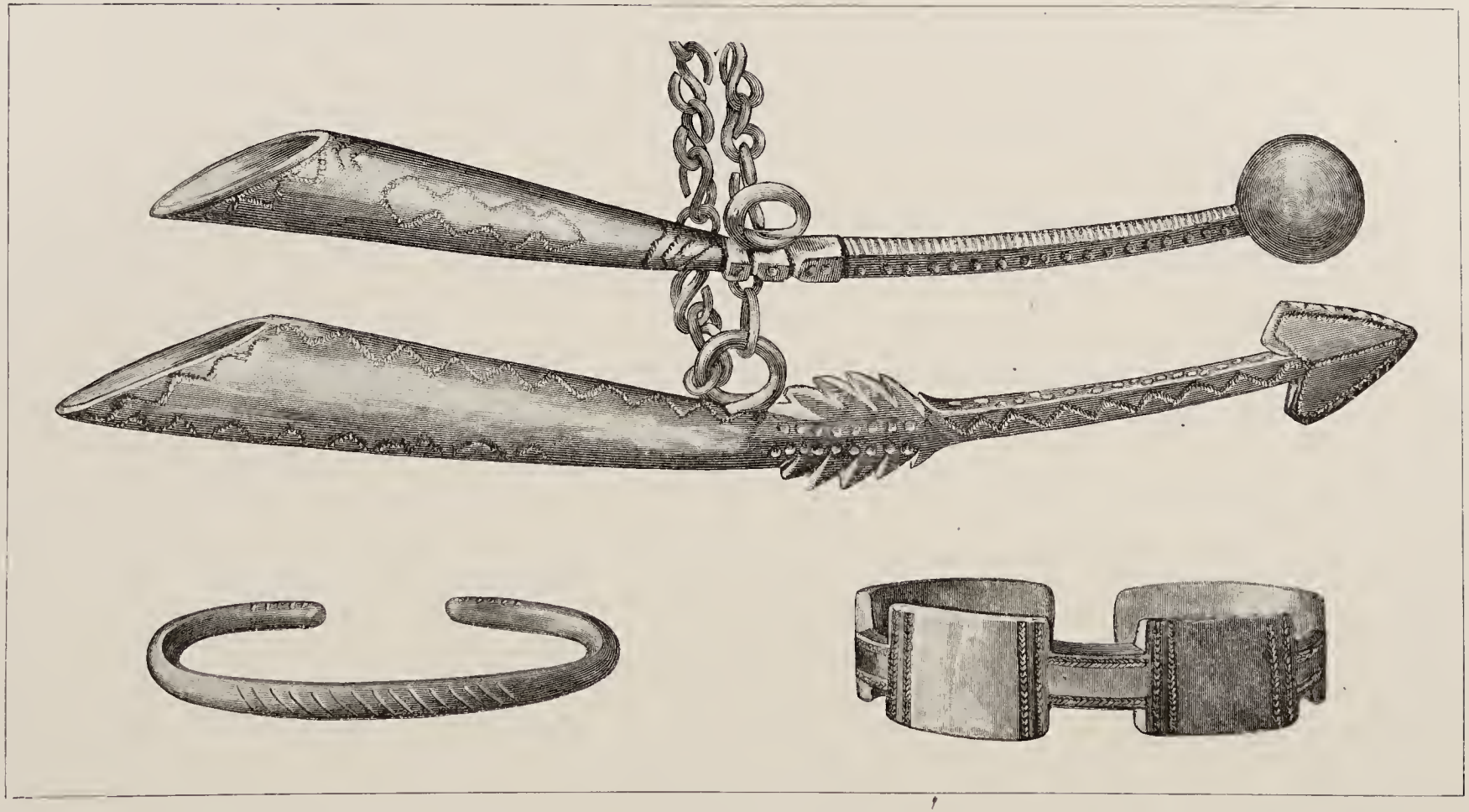
For polishing, they have sand-paper and emery-paper purchased from the whites; but as these are expensive, they are usually required only for the finishing touches, the first part of the work being done with powdered sandstone, sand, or ashes, all of which are used with or without water. At certain stages in the progress of the work, some articles are rubbed on a piece of sandstone to reduce the surfaces to smoothness; but the stone, in this instance, is more a substitute for the file than for the sand-paper. Perhaps I should say that the file is a substitute for the stone, for there is little doubt that stone, sand, and ashes preceded file and paper in the shop of the Indian smith.

For blanching the silver, when the forging is done, they use a mineral substance found in various parts of their country, which, I am informed by Mr. Taylor, of the Smithsonian Institution, is a "hydrous sulphate of alumina," called almogen. This they dissolve in water, in a metal basin, with the addition, sometimes, of salt. The silver, being first slightly heated in the forge, is boiled in this solution and in a short time becomes very white.

The processes of the Navajo silversmith may be best understood from descriptions of the ways in which he makes some of his silver ornament. I once engaged two of the best workmen in the tribe to come to Fort Wingate and work under my observation for a week. They put up their forge in a small outbuilding at night, and early next morning they were at work. Their labor was almost all performed while they were sitting or crouching on the ground in very constrained positions; yet I never saw men who worked harder or more steadily. They often labored from twelve to fifteen hours a day, eating their meals with dispatch and returning to their toil the moment they had done. Occasionally they stopped to roll a cigarette or consult about their work, but they lost very few moments in this way. They worked by the job and their prices were such that they earned about two dollars a day each.

The first thing they made was a powder charger with a handle in the shape of a dart (Fig. 2, Pl. XIX). Having cut in sandstone rock (Fig. 2, Pl. XVIII) the necessary grooves for molds and greased the same, they melted two Mexican dollars—one for the bowl or receptacle, and one for the handle—and poured each one into its appropriate mold. Then each smith went to work on a separate part; but they helped one another when necessary. The ingot cast for the receptacle was beaten into a plate (triangular in shape, with obtuse corners), of a size which the smith guessed would be large enough for his purpose. Before the process of bending was quite completed the margins that were to form the seam were straightened by clipping and filing so as to assume a pretty accurate contact, and when the bending was done, a small gap still left in the seam was filled with a shred of silver beaten in. The cone, at this stage, being indented and irregular, the workman thrust into it a conical stake or mandrel, which he had formed carefully out of hard wood, and with gentle taps of the hammer soon made the cone even and shapely. Next, withdrawing the stake, he laid on the seam a mixture of borax and minute clippings of silver moistened with saliva, put the article into the fire, seam up, blew with the bellows until the silver was at a dull red-heat, and then applied the blow-pipe and flame until the soldering was completed. In the meantime the other smith had, with hammer and file, wrought the handle until it was sufficiently formed to be joined to the receptacle, the base of the handle being filed down for a length of about a quarter of an inch so that it would fit tightly into the orifice at the apex of the receptacle. The two parts were then adjusted and bound firmly together with a fine wire passing in various directions, over the base of the cone, across the protuberances on the dart-shaped handle, and around both. This done, the parts were soldered together in the manner already described, the ring by which it is suspended was fastened on, the edge of the receptacle was clipped and filed, and the whole was brought into good shape with file, sand, emery-paper, &c.

The chasing was the next process. To make the round indentations on



OBJECTS IN SILVER.

the handle, one smith held the article on the anvil while the other applied the point of the shank of a file—previously rounded—and struck the file with a hammer. The other figures were made with the sharpened point of a file, pushed forward with a zigzag motion of the hand. When the chasing was done the silver was blanched by the process before referred to, being occasionally taken from the boiling solution of almogen to be rubbed with ashes and sand. For about five hours both of the smiths worked together on this powder-charger; subsequently, for about three hours' more, there was only one man engaged on it; so that, in all, thirteen hours labor was spent in constructing it. Of this time, about ten hours were consumed in forging, about one and one-half hours in filing and rubbing, and about the same time in ornamenting and cleaning.

In making the hollow silver beads they did not melt the silver, but beat out a Mexican dollar until it was of the proper tenuity—frequently annealing it in the forge as the work advanced. When the plate was ready they carefully described on it, with an awl, a figure (which, by courtesy, we will call a circle) that they conjectured would include a disk large enough to make half a bead of the required size. The disk was then cut out with scissors, trimmed, and used as a pattern to cut other circular pieces by. One of the smiths proceeded to cut out the rest of the planchets, while his partner formed them into hollow hemispheres with his matrix and die. He did not put them at once into the cavity from which they were to get their final shape, but first worked them a little in one or more larger cavities, so as to bring them gradually to the desired form. Next the hemispheres were leveled at the edges by a method already described, and subsequently perforated by holding them, convex surface downwards, on a piece of wood, and driving through them the shank of a file with blows of a hammer. By this means of boring, a neck was left projecting from the hole, which was not filed off until the soldering was done. The hemispheres were now strung or, I may say, spitted on a stout wire in pairs forming globes. The wire or spit referred to was bent at one end and supplied with a washer to keep the heads from slipping off, and all the pieces being pressed closely together were secured in position by many wraps of finer wire at the other end of the spit. The mixture of borax, saliva, and silver was next applied to the seams of all the beads; they were put into the fire and all soldered at one operation. When taken from the fire they were finished by filing, polishing and blanching.

These Indians are quite fertile in design. In Pl. XIX are shown two powder-chargers, which I consider very graceful in form. I have seen many of these powder-chargers, all very graceful, but no two alike except in cases where duplicates had been specially ordered. Their designs upon bracelets and rings are of great variety. Ornaments for bridles, consisting of broad bands of silver, sufficient in size and number to almost entirely conceal the leather, are not particularly handsome, but

are greatly in demand among the Navajos and are extensively manufactured by them. Leather belts studded with large plates of silver are favorite articles of apparel, and often contain metal to the value of forty or fifty dollars. Pl. XX represents an Indian wearing such a belt, in which only three of the plates are shown. Single and double crosses of silver are represented attached to his necklace. The cross is much worn by the Navajos, among whom, I understand, it is not intended to represent the "Cross of Christ," but is a symbol of the morning star. The lengthening of the lower limb, however, is probably copied from the usual form of the Christian emblem. These savage smiths also display much ingenuity in working from models and from drawings of objects entirely new to them.

They are very wasteful of material. They usually preserve the clippings and melt them in the crucible, or use them in soldering; but they make no attempt to save the metal carried off in filing, polishing, and by oxidizing in the forge, all of which is considerable. In one article of silver, for which, allowing for clippings saved, 836 grains were given to the smith, and the work on which I watched so closely throughout that I am certain none of the material was stolen, there was a loss of 120 grains, or over 14 per cent.

The smiths whom I have seen working had no dividers, square, measure, or any instrument of precision. As before stated, I have seen scissors used as compasses, but as a rule they find approximate centers with the eye, and cut all shapes and engrave all figures by the unaided guidance of this unreliable organ. Often they cut out their designs in paper first and from them mark off patterns on the metal. Even in the matter of cutting patterns they do not seem to know the simple device of doubling the paper in order to secure lateral uniformity.

Here ends my description of the smithcraft of a rude but docile and progressive people. I trust that it may serve not only to illustrate some aspects of their mental condition, their inventive and imitative talents, but possibly to shed some light on the condition and diffusion of the art of the metalist in the prehistoric days of our continent, notwithstanding the fact that some elements of their craft are of recent introduction and others of doubtful origin.

NAVAJO INDIAN WITH SILVER ORNAMENTS.

SMITHSONIAN INSTITUTION——BUREAU OF ETHNOLOGY.

ART IN SHELL

OF THE

ANCIENT AMERICANS.

BY

WILLIAM H. HOLMES.

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ART IN SHELL OF THE ANCIENT AMERICANS.

By William H. Holmes.

INTRODUCTORY.

The student will find scattered throughout a wide range of archæologic literature frequent but casual mention of works of art in shell. Individual uses of shell have been dwelt upon at considerable length by a few authors, but up to this time no one has undertaken the task of bringing together in one view the works of primitive man in this material.

Works of ancient peoples in stone, clay, and bronze, in all countries, have been pretty thoroughly studied, described, and illustrated.

Stone would seem to have the widest range, as it is employed with almost equal readiness in all the arts.

Clay is widely used and takes a foremost place in works of utility and taste.

Metals are too intractable to be readily employed by primitive peoples, and until a high grade of culture is attained are but little used.

Animal substances of compact character, such as bone, horn, ivory, and shell, are also restricted in their use, and the more destructible substances, both animal and vegetable, however extensively employed, have comparatively little archæologic importance.

All materials, however, are made subservient to man and in one way or another become the agents of culture; under the magic influence of his genius they are moulded into new forms which remain after his disappearance as the only records of his existence.

Each material, in the form of convenient natural objects, is applied to such uses as it is by nature best fitted, and when artificial modifications are finally made, they follow the suggestions of nature, improvements being carried forward in lines harmonious with the initiatory steps of nature.

Had the materials placed at the disposal of primitive peoples been as uniform as are their wants and capacities, there would have been but little variation in the art products of the world; but the utilization of a particular material in the natural state gives a strong bias to artificial products, and its forms and functions impress themselves upon art products in other materials. Thus unusual resources engender unique arts

and unique eultures. Such a result, I apprehend, has in a measure been achieved in North Ameriea.

In a broad region at one time occupied by the mound-building tribes we observe a peculiar and an original effort—an art distinctive in the material employed, in the forms developed, and to some extent in the ideas represented. It is an age of shell, a sort of supplement to the age of stone.

It is not my intention here to attempt at extended discussion of the bearings of this art upon the various interesting questions of anthropologie science, but rather to present certain of its phases in the conerete, to study the embodiment of the art of the ancient Amerieau in this one material, and to present the results in a tangible manner, not as a catalogue of objeets, but as an elementary part of the whole body of human art, illustrating a partieular phase of the evolution of culture.

This paper is to be regarded simply as an outline of the subjeet, to be followed by a more exhaustive monograph of the art in shell of all the ancient American peoples.

Art had its beginning when man first gathered clubs from the woods, stones from the river bed, and shells from the sea-shore for weapons and utensils. In his hands these simple objects became modified by use into new forms, or were intentionally altered to inerease their eonvenience. This was the infaney, the inception of eulture—a period from which a tedious but steady advanee has been made until the remarkable achievements of the present have been reached.

Rude clubs have become weapons of curions eonstruction and maehinery of marvelous eomplication, and the pebbles and shells are the prototypes of numerous works in all materials. Rude rafts which served to eross primeval rivers have become huge ships, and the original house of bark and leaves is represented by palaces and temples, glittering with light and glowing with eolor.

The steps which led up to these results are by no means elear to us; they have not been built in any one place or by any one people. Nations have risen and fallen, and have given plaee to others that in turn have left a heap of ruins. We find it impossible to trace baek through the historic ages into and beyond the prehistorie shadows, the pathway to culture followed by any one people. The necessity for groping inereases with every baekward step, and we pick up one by one the scattered links of a ehain that has a thousand times been broken. So far our information is meager and fragmentary, and eenturies of research will be required to round up our knowledge to such a fullness as to enable us to rehabilitate the ancient races, a result to be reaehed only by an exhaustive comparative study of the art products of all peoples and of all ages.

By eolleeting the various relics of art in shell I shall be able to add a fragment to this great work. Destructible in their charaeter these relies are seldom preserved from remote periods, and it is only by reason of

their inhumation with the dead that they appear among antiquities at all. A majority of such objects, taken from graves and tumuli, known to post-date even the advent of the white race in North America, are so far decayed that unless most carefully handled they crumble to powder.

It is impossible to demonstrate the great antiquity of any of these relics. Many of those obtained from the shell heaps of the Atlantic coast are doubtless very ancient, but we cannot say with certainty that they antedate the discovery more than a few hundred years.

Specimens obtained from the mounds of the Mississippi Valley have the appearance of great antiquity, but beyond the internal evidence of the specimens themselves we have no reliable data upon which to base an estimate of time. The age of these relics is rendered still less certain by the presence of intrusive interments, which place side by side works of very widely separated periods.

The antiquity of the relics themselves is not, however, of first importance; the art ideas embodied in them have a much deeper interest. The tablets upon which the designs are engraved may be never so recent, yet the conceptions themselves have their origin far back in the forgotten ages. Deified ancestors and mythical creatures that were in the earlier stages rudely depicted on bark and skins and rocks were, after a certain mastery over materials had been achieved, engraved on tablets of flinty shell; and it is probable that in these rare objects we have, if not a full representation of the art of the ancient peoples, at least a large number of their most important works, in point of execution as well as of conception.

Man in his most primitive condition must have resorted to the seashore for the food which it affords. Weapons or other appliances were not necessary in the capture of mollusks; a stone to break the shell, or one of the massive valves of the shells themselves, sufficed for all purposes.

The shells of mollusks probably came into use as utensils at a very early date, and mutually with products of the vegetable world afforded natural vessels for food and water.

For a long period the idea of modifying the form to increase the convenience may not have been suggested and the natural shells were used for whatever purpose they were best fitted. In time, however, by accidental suggestions it would be found that modifications would enhance their usefulness, and the breaking away of useless parts and the sharpening of edges and points would be resorted to. Farther on, as it became necessary to carry them from point to point, changes would be made for convenience of transportation. Perforations which occur naturally in some species of shell, would be produced artificially, and the shells would be strung on vines or cords and suspended about the neck; in this way, in time, may have originated the custom of wearing pendants for personal ornament. Following this would be the trans-

portation of such articles to distant places by wandering tribes, exchanges would take place with other tribes, and finally a trade would be developed and a future commerce of nations be inaugurated.

Results similar to the foregoing would spring doubtless from the employment of substances other than shell, but that material most closely associated with the acquisition of food would come first prominently into use.

The farther these useful articles were carried from the source of supply the greater the value that would attach to them, and far inland the shell of the sea might easily become an object of unusual consideration. Having an origin more or less shrouded in mystery, it would in time become doubly dear to the heart of the superstitious savage, perhaps an object of actual veneration, or at least one of such high esteem that it would be treasured by the living and buried with the dead.

The material so plentiful on the sea-shore that it was thought of only as it proved useful for vessels and implements, became a valued treasure in the interior; its functions were gradually enlarged and differentiated; it was worked into varied shapes, such as pendants for the ears, beads for the neck, pins for the hair, and elaborate gorgets for the breast; it served its turn as fetich and charm; and was frequently used in the ceremonial jugglery of the mystic dance.

The slightest modification of these relics by the hand of man attracts our attention, and from that infant stage of the art until the highest and most elaborate forms are reached they have the deepest interest to the student of human progress.

IMPLEMENTS AND UTENSILS.

UNWORKED SHELLS.

Some writers have suggested that the ancient peoples of the interior districts must have held shells from the sea in especial esteem, not only on account of their rarity, but also by reason of some sacred properties that had, from the mystery of their origin, become attached to them. It would appear, however, that shells were valued chiefly for their utility and beauty, and that fresh water as well as marine varieties were constantly employed. In their unworked state, for their beauty alone, they are treasured by peoples in all grades of culture, from the savage up through the barbarian stages to the most civilized state. As they are most conveniently shaped for utensils and implements, they have been of great service in the arts, and were thus of the greatest importance to primitive peoples.

It must not be supposed that the natural shells found in graves were always destined for use in an unworked state, but they should doubtless in many cases be regarded as highly-valued raw material intended for use in the manufacture of articles of utility and taste, in the tempering of potter's clay, or in effecting exchanges with neighboring tribes.

As vessels for food and drink, and as cups for paint, many species are most conveniently shaped. Good examples may be found in the *Haliotis*, so plentiful on the Pacific coast, the *Heleioniscus* of the Pacific islands, the *Pattelidæ* of Central and South America, or the *Peeten* of many seas.

In their natural state they have a twofold interest to us—as utensils they are the forerunners of many more elaborate forms that have been evolved in more advanced stages of culture, and in their distribution they give us important insight into the commerce and migrations of their aboriginal owners.

Pectens.—The Pectens are very widely distributed, and on account of their beauty of form and color have been in great favor with all peoples. They figure in the heraldic devices of the Middle Ages and in the symbolic paintings of the ancient Mexicans. They have been employed extensively by the ancient inhabitants of America as ornaments and rattles, and many examples exhumed from graves, mounds, and refuse heaps appear to have been used as utensils, cups for paint, and vessels for food and drink. They are especially plentiful in the cemeteries of the ancient Californians, from which Schumacher and Bowers have made excellent collections, and specimens may be found in the great museums

of the country. A very good example of this shell (*Janira dentata*)[1] is shown in Fig. 3, Plate XXI, which represents a paint cup from Santa Barbara, Cal. This cup is still partially filled with dark, purplish, indurated paint. Some were receptacles for asphaltum, while others, which are quite empty, were employed probably for domestic purposes. The species chiefly used on the Atlantic coast are the *Pecten irradians* and *P. concentricus*. On the Pacific coast the *Pecten caurinus* and *P. hastatus* are employed by the Makah and other Indians for rattles, and it is probable that some of the rudely perforated specimens found in our collections were intended for the same purpose.

Clams.—Clams formed a very important part of the food of the ancient seaboard tribes, and the emptied shells have been utilized in a great variety of ways. The valves of many species are large and deep, and are available for cups and dishes, and as such are not scorned even by the modern clam-baker, who, like the ancient inhabitant, makes periodical visits to the sea-shore to fish and feast. They were also used as knives, scrapers, and hoes, and in historic times have been extensively used in the manufacture of wampum. The hard-shell clam, *Venus mercenaria*, on account of the purplish color of portions of the valves, has been most extensively used for this purpose. A southern variety, the *Mercenaria præparca*, is much larger and furnishes excellent dishes. The soft-shell clam, *Mya arenaria*, has been an important article of food, but the valves are not serviceable in the arts. The hen clam, *Mactra ponderosa*, which has large handsome valves, has also been used to some extent for utensils. On the Pacific coast the large clam, *Pachydesma crassatelloides*, is known also to be similarly used.

Unios.—Shells of the great family of the *Unios* have always held an important place in the domestic and mechanical arts of the savages of North America. Their chalky remains are among the most plentiful relics of the mounds and other ancient burial-places, and they come from kitchen middens and the more recent graves with all the pearly delicacy of the freshly emptied shell.

The valves of many varieties of these shells are well adapted to the use of man. Not large enough for food vessels, they make most satisfactory spoons and cups, and are frequently found to retain portions of the pigments left from the last toilet of the primeval warrior and destined for use in the spirit land. It is probable, however, that they were much more frequently employed as knives and scrapers, and as such have played their part in the barbaric feast of the primitive village, or have assisted in the bloody work of scalp-taking and torture. They are pretty generally distributed over the country, and their occurrence in the mounds will probably have but little importance in the study of artificial distribution. Very little trouble has been taken by explorers and writers to identify the numerous species collected.

[1] I am greatly indebted to Prof. W. H. Dall, of the Coast Survey, for assistance in the identification of Pacific coast varieties.

Haliotis.—The *Haliotis* affords one of the best examples of the varied uses to which the natural shell has been applied by savage peoples. Recent explorations conducted by the government exploring parties in California have brought to the notice of archæologists and the world the existence of a new field of research—the burial-places of the ancient tribes of the Pacific coast. Many of the interments of this region are probably post-Columbian. Several species of this beautiful shell were used and are taken from the graves in great numbers, the pearly lusters being almost perfectly preserved. Many were used as paint-cups, and still retain dark pigments, probably ochers; one of these, a fine example of the *Haliotis californianus*, is shown in Fig. 4, Plate XXI. Some had contained food, and in a few cases still retained the much-esteemed *chia* seed, while in others were found asphaltum, which was employed by these peoples in a variety of arts, the rows of eyes in the *Haliotis* usually being stopped with it, and in one case, as shown in a specimen in the National Museum, it has been used to deepen a cup by building up a rim around the edge of a shallow shell. Many others are quite empty, and doubtless served as bowls, dishes, and spoons, or were ready at hand for the manufacture of implements and ornaments. Buried with the dead, they were designed to serve the purposes for which they were used in life.

This shell probably formed as important a factor in the commerce of these tribes as did the large conchs of the Atlantic coast in that of the mound-builders and their neighbors. In recent times they are known to have a high value attached to them, and Professor Putnam states[1] that a few years ago a horse could be had in exchange for a single shell of the *Haliotis rufescens*. This species is a great favorite toward the south, and the *Haliotis Kamschatkana*, which furnishes a dark greenish nacre, is much used farther north.

The rougher and more homely oyster-shell has also enjoyed the favor of the mound-building tribes, and has probably served many useful purposes, such as would only be suggested to peoples unacquainted with the use of metal. Many species of the *Fissurella* and *Dentalium* shells were in common use, advantage being taken of the natural perforations for stringing, the latter being quite extensively used for money on the Pacific slope.

In Fig. 2, Plate XXI, a cut is given of a *Mytilus* shell paint-cup from an ancient Peruvian grave. It is copied from Plate 83 of the Necropolis of Ancon.[2] It is represented as still containing red paint, probably cinnabar.

A great variety of the larger univalve sea-shells were used in the unaltered state, the *Busycons* probably taking the most important place, species of the *Strombus*, the *Cassis*, the *Nautilus* and *Fasciolaria* following in about the order named.

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[1] Putnam: in Surveys West of the 100th Meridian, Vol. VII, p. 251.

[2] Reiss and Stübel: Necropolis of Ancon, Peru, Plate 83.

The *Busycon perversum* has been more extensively used than any other shell, and consequently its distribution in one form or other is very wide. It is obtained along the Atlantic and Gulf coasts from Massachusetts to Mexico, and within the United States it is artificially distributed over the greater part of the Atlantic slope. The uses to which this shell has been put by the ancient Americans are so numerous and varied that I shall not attempt to enumerate them here. They are, however, pretty thoroughly brought out in the subsequent pages of this paper.

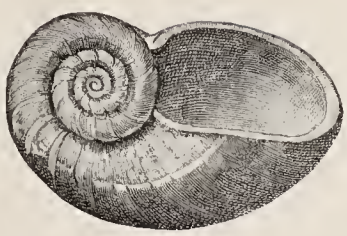
From the employment of shells in their complete state their modification for convenience is but a slight step, and when once suggested is easily accomplished—holes are bored, handles are carved or added, margins are ground down, useless parts are broken away, and surfaces are polished. The columellæ are removed from the large univalves, and the parts used for a great variety of purposes. The mechanical devices employed have been very simple, such as flint implements for cutting, and rough stones for breaking and grinding. Hand-drills were at first used for perforating; but later mechanically revolving drills were devised.

VESSELS.

I shall not attempt to take up the various classes of objects in shell in the order of their development, as it would be hard to say whether food utensils, weapons, or ornaments were first used. It is also difficult to distinguish weapons proper from implements employed in the arts, such as celts, knives, hammers, etc., as it is probable they were all variously used according to the needs of their possessors.

Having briefly treated of natural vessels, it seems convenient to go on with vessels shaped by art. Early explorers in many portions of the American continent record, in their writing, the use by the natives of shells of various kinds as vessels. We have in this case historic evidence which bears directly upon prehistoric customs. Indeed, it is not impossible that the very shells used by the natives first encountered by Europeans, are the identical ones exhumed so recently from burial places, as many of the finer specimens of shell objects have associated with them articles of undoubted European manufacture. A notice of the earliest recorded use of these objects naturally introduces the prehistoric use.

With many nations that were bountifully supplied with convenient earthen and stone vessels, as well perhaps as others of the hard shells of fruits, the sea-shell was nevertheless a favorite vessel for drinking. Herrera describes the use of silver, gold, shell, and gourd cups at the banquets of the elegant monarch Montezuma II, who "sometimes drank



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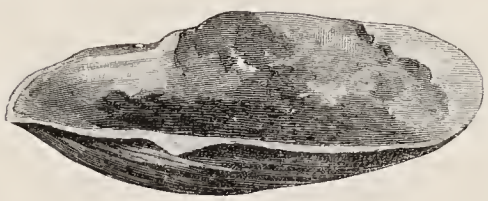

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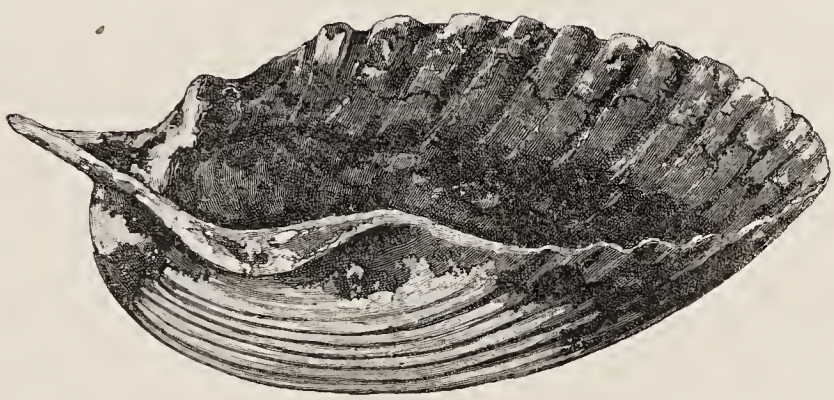


3

4

1. From a plate in De Bry.
2. From a Peruvian grave.
3. Pecten, California grave. ($\frac{1}{1}$)
4. Haliotis, California grave. ($\frac{3}{4}$)

SHELL VESSELS.

out of cocoas and natural shells richly set with jewels." Other authors make similar statements. Clavigero says that "beautiful sea-shells or naturally formed vessels, curiously varnished, were used." In many of the periodical feasts of the Florida Indians shells were in high favor, and it is related how at a certain stage of one of the dances two men came in, each bearing very large conch-shells full of black drink, which was an infusion of the young leaves of the *cassine* (probably *Ilex Cassine*, L.). After prolonged ceremonies, this drink was offered to the king, to the whites present, and then to the entire assembly.[1] It is a remarkable fact that a similar custom has been noticed among the Moquis of Arizona. Lieutenant Bourke witnessed the snake dance of that tribe a few years ago, and states that in front of the altar containing the snakes was a covered earthen vessel, which contained four large sea-shells and a liquid of some unknown composition, of which the men who handled the snakes freely drank. Vessels thus associated with important ceremonial customs of savages would naturally be of first importance in their sepulchral rites. De Bry, in the remarkable plates of his "Brevis Narratio," furnishes two instances of such use. Plate 19 shows a procession of nude females who scatter locks of their hair upon a row of graves, on each of which has been placed a large univalve shell, probably containing food or drink for the dead, and in Plate 40 we have another illustration of this custom, the shell being placed on the heap of earth raised above the grave of a departed chieftain. In Plate XXI, Fig. 1, an outline of the shell represented is given; it resembles most nearly the pearly nautilus, but, being drawn by the artist from memory or description, we are at liberty to suppose the shell actually used was a large *Busycon* from the neighboring coast, probably more or less altered by art. Haywood, Hakluyt, Tonti, Bartram, Adair, and others mention the use of shells for drinking vessels, and in much more recent times Indians are known to have put them to a similar use.

On account of the rapidity with which they decay, we can know nothing of surface deposits of shells by prehistoric or even by comparatively recent peoples. It is only through the custom of burying valued articles with the dead that any of these relics are preserved to us. When we consider the quantity of such objects necessarily destroyed by time, exposure, and use, we marvel at the vast numbers that must have been, within a limited period of years, carried inland. In the more recent mounds there may be found specimens obtained by the Indians through the agency of white traders, but the vast majority were derived doubtless from purely aboriginal sources. Many instances could be cited to show that the whites have engaged in the trade in shells. Kohl, in speaking of early trade with the Ojibways of Lake Superior, states that when the traders "exhibited a fine large shell and held it to the ears of the Indians, these latter were astonished, saying they heard the roaring

[1] De Bry: Collectio Pars 2. Brevis Narratio, 1591, Plate 29.

of the ocean in it, and paid for such a marvelous shell furs to the value of $30 or $40, and even more."[1]

Cabeça de Vaca[2] traded in sea-shells and "hearts" of sea-shells among the Charruco Indians of the Gulf coast nearly three hundred and fifty years ago.

The form of vessel of most frequent occurrence is made by removing the whorl, columella, and about one-half of the outer shell of the large univalves. The body of the lower whorl is cut longitudinally, nearly opposite the lip and parallel with it. The spire is divided on the same plane, a little above the apex, giving a result well illustrated in Fig. 1, Plate XXII. A very convenient and capacious bowl is thus obtained, the larger specimens having a capacity of a gallon or more. The work of dividing the shell and removing neatly the interior parts must have been one of no little difficulty, considering the compactness of the shell and the rudeness of the tools.

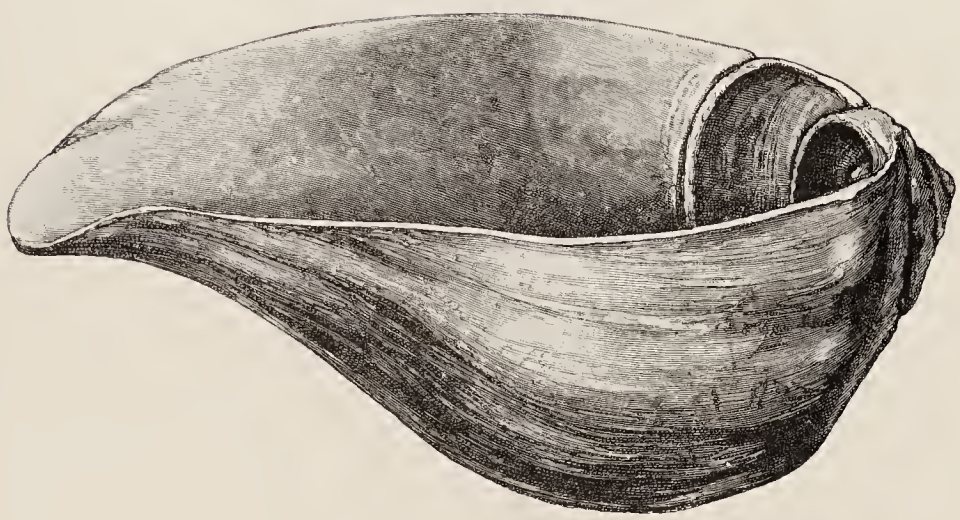
For nomadic peoples these vessels would have a great superiority over those of any other material, as they were not heavy and could be transported without danger of breaking.

In the manufacture of these vessels the *Busycon perversum* seems to have been a great favorite; this may be the result of the less massive character of the shell, which permits more ready manipulation. The spines are less prominent and the walls more uniform in thickness than in shells of most other varieties found along the Atlantic seaboard. Specimens of the *Strombus*, *Cassis*, and *Fasciolaria* were occasionally used. The specimen illustrated in Fig. 1, Plate XXII, is from a mound at Ritcherville, Ind., and is now in the National Museum at Washington. It is made from a *Busycon perversum*, and is ten and one-half inches in length by six and one-half in width at the most distended part. The body and spire have been cut in the manner described above, and the interior whorl and columella have been skillfully taken out. The rim is not very evenly cut, but is quite smooth. The outer surface of the shell has been well polished, but is now worn and scarred by use. The substance of the shell is very well preserved. A second example, now in the national collection, is from an ancient mound at Naples, Ill. It is very similar to the preceding, being made from the same species of shell. It is eleven inches in length by seven in width. The body of the shell is well preserved, the apex, however, being broken away. A small specimen, also in the National Museum, was obtained from a mound at Nashville, Tenn., by Professor Powell. It is three and a half inches in length, and very shallow, being but a small portion of the lower whorl of a *Busycon*.

Among the more recent acquisitions to the national collection are two very fine specimens of these *Busycon* vessels. One of these was obtained from a mound at East Dubuque, Ill. It is eleven inches in length by seven in width at the widest part; the exterior surface is

[1] Kohl: Kitschi-Gami, vol. I, p. 186, Rau, trans.

[2] Cabeça de Vaca: Relation et Naufrages. Paris, 1837, p. 121. Spanish ed., 1555.



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2

1. Shell vessel made from a *Busycon perversum*, Ind (2/5)
2. Earthen vessel made in imitation of shell, Mo. (3/4)

VESSELS.

highly polished; the interior is less so, having suffered somewhat from decay; the beak is very long and slender, and has been used as a handle. The whole vessel has a dipper-like appearance.

The finest example of these vessels yet brought to my notice was obtained from a mound at Harrisburg, Ark., by Dr. Palmer, in October, 1882. It differs from the other specimens described in having an elaborate ornamental design engraved on the exterior surface. In shape it corresponds pretty closely to the first specimen figured, no part of the spire, however, being cut away; the interior parts have been removed, as usual. The surface is quite smooth, and the ridges on the inner surface of the spire are neatly rounded and polished. Its length is eleven inches, and its width seven. Plate XXIII is devoted to the illustration of this specimen. The entire exterior surface, from apex to base, is covered with a design of engraved lines and figures, which are applied in such a manner as to accord remarkably well with the expanding spiral of the shell. The upper surface of the spire is unusually flat, and has been ground quite smooth. It will be seen by reference to Fig. 2, Plate XXIII, that a series of lines, interrupted at nearly regular intervals by short cross lines and rectangular intaglio figures, has been carried from the apex outward toward the lip. Another series of lines begins on the upper margin next the inner lip of the shell, passes around the circumference of the upper surface, and extends downward over the carina, covering, as shown in the other figure, the entire body of the vessel, excepting the extreme point of the handle. The base of the shell, which is perforated, has a small additional group of lines. The lines of the principal series are, on the more expanded portion of the body of the shell, about eight inches long, and are interrupted by two rows of short lines and two rows of incised rectangular figures. The space between the latter contains the most interesting feature of the design. Three arrow-head shaped figures, two inches in length by one and one-half in width, are placed, one near the outer lip, another near the inner lip, and the third in the middle of the body, a little below the center. These figures are neatly cut and symmetrical, and resemble a barbed and blunt-pointed arrow-head. Near the center of each is a small circle, which gives the figure a close resemblance to a variety of perforated stone implements, one specimen of which has been found near Osceola, Ark. Whatever may be the significance of this design, and it is undoubtedly significant, it is at least a very remarkable piece of work and a highly successful effort at decoration. The pottery of this region which is generally highly decorated with painted and incised lines, contains nothing of a character similar to this, and it is probable that what I have come to consider a rule in such matters applies in this case; the design on the shell is significant or ideographic, that on the pottery is purely ornamental.

For the purpose of showing the very wide distribution of vessels made from large seashells, especially the *Busycon perversum*, I introduce here descriptions of most of the specimens heretofore reported.

Dr. Rau, in his paper on ancient aboriginal trade in North America, states that in the collection of Colonel Jones, of Brooklyn, there is a vessel formed from a *Cassis* which is eight and a half inches long, and has a diameter of seven inches where its periphery is widest. It was obtained from a stone grave near Clarksville, Habersham County, Georgia.[1]

Two fine specimens of the *Cassis flammea* were taken from mounds in Nacoochee Valley, Georgia. They were nearly ten inches in length and about seven inches in diameter. The interior whorls and columellæ had been removed, so that they answered the purpose of drinking cups or receptacles of some sort.[2]

From a stone grave mound near Franklin, on the Big Harpeth River, Prof. Joseph Jones took two large sea-shells, one of which was much decayed. The interior surface of these shells had been painted red, and the exterior had been marked with three large circular spots.[3]

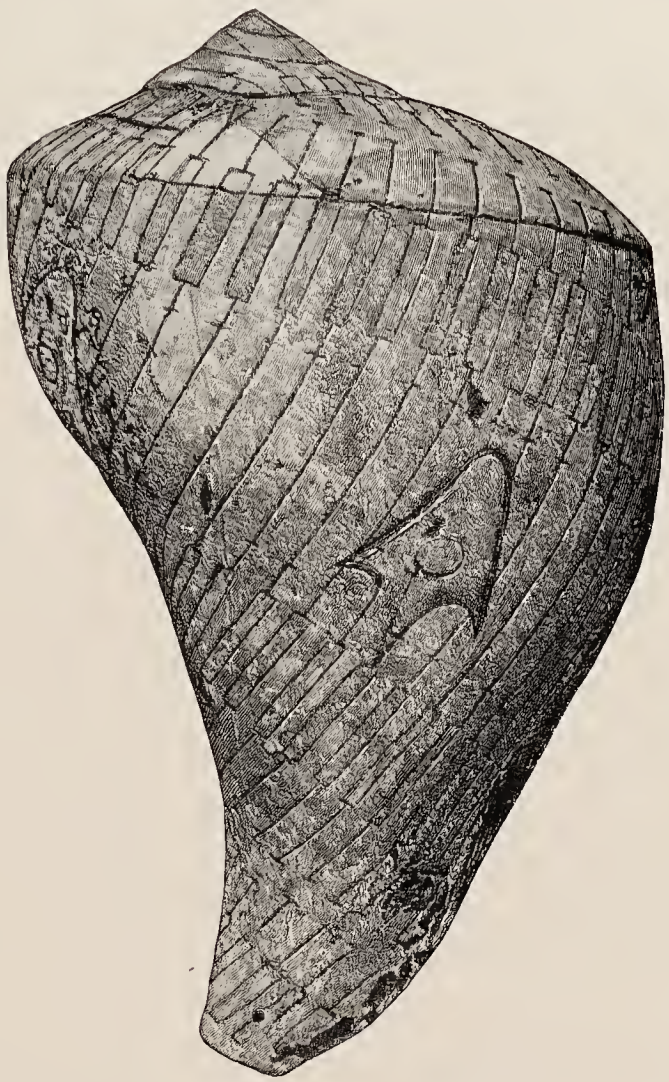
In the grave of a child, near the grave just mentioned, the following relics were found: "Four large sea-shells, one on each side of the skeleton, another at the foot, and the fourth, a large specimen, with the interior apartments cut out and the exterior surface carved, covered the face and forehead of the skull."[4]

In a small mound opposite the city of Nashville, Tenn., Professor Jones found "a large sea-conch." The interior portion or spiral of which had been carefully cut out; it was probably used as a drinking vessel, or as the shrine of an idol as in a case observed by Dr. Troost.[5]

Two large shells of *Busycon*, from which the columellæ had been removed, were obtained from the Lindsley mounds, sixty miles east of Nashville, by Professor Putnam.[6]

Professor Wyman, writing of the mounds of Eastern Tennessee, says that "among the implements are well-preserved cups or dishes, made of the same species of shell [*Busycon perversum*] as the preceding, but of much more gigantic size than those now found. One of them measures a foot in length, though the beak has been broken off. When entire its length could not have been less than fourteen or fifteen inches. These shells probably came from the Gulf of Mexico, and found their way into Tennessee as articles of traffic. The dishes are made in the same way, and not to be distinguished from those found in Florida at the time of the first visit of the Europeans, or from those, as will be seen further, found in the ancient burial mounds. The great similarity in the style and make of these dishes renders it quite probable that they were manufactured in Florida."[7] A number of similar dishes, made

[1] Rau, in Smithsonian Report for 1872, p. 376.
[2] Jones: Antiquities of the Southern Indians, p. 233.
[3] Jones: Aboriginal Remains of Tennessee, p. 59.
[4] *Ibid.*, p. 60.
[5] *Ibid.*, p. 45.
[6] Putnam, in Eleventh Annual Report, Peabody Museum, p. 355.
[7] Wyman, in Third Annual Report, Peabody Museum, p. 7.



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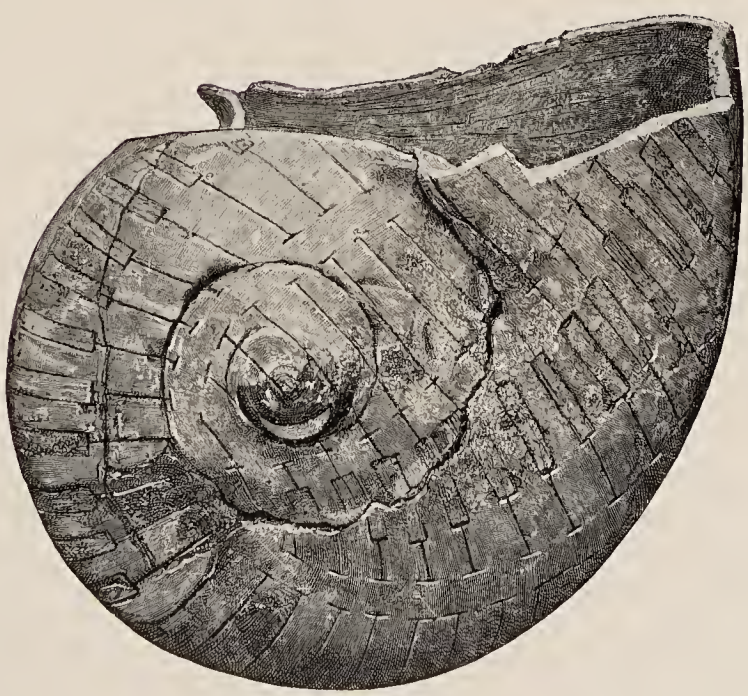

2

ENGRAVED VESSEL.

Harrisburg, Ark.

from the same shell, were obtained from mounds at Cedar Keys, Florida, by Professor Wyman.[1]

Francis Cleveland, C. E., who, in 1828, had charge of the excavation known as the "deep cut" on the Ohio Canal, informed Colonel Whittlesey that at the depth of twenty-five feet in the alluvium several shells belonging to the species *Busycon perversum* were taken out.[2]

Dr. Drake, writing of the Cincinnati mounds, mentions "several large marine shells, belonging, perhaps, to the genus *Buccinum*, cut in such a way as to serve for domestic utensils, and nearly converted into a state of chalk."[3]

Mr. Atwater states that "several marine shells, probably *Buccinum*, cut in such a manner as to be used for domestic utensils, were found in a mound on the Little Miami River, Warren County, Ohio."[4]

A *Cassis* of large size, from which the inner whorls and columella had been removed to adapt it for use as a vessel, was found in Clark's mound, on Paint Creek, Scioto Valley, Ohio.[5] This specimen is eleven and a half inches in length by twenty-four in circumference at the largest part. It is further stated that fragments of these and other shells are found in the tumuli and upon the altars of the mound-builders. In digging the Ohio and Erie Canal, there was found, near Portsmouth, its southern terminus on the Ohio River, a cluster of five or six large shells, which appeared to have been thus carefully deposited by the hand of man. They were about three feet beneath the surface. The columellæ of some large shells, probably the *Strombus gigas*, were also discovered.[6]

Several large marine shells were found in a mound near Grand Rapids, Mich. They were all hollowed out, apparently for carrying or storing water, and in one case perforated at the upper edge on opposite sides for suspension by a cord or thong.[7]

Mr. Farquharson mentions a vessel made from a *Busycon perversum*, obtained from a mound near Davenport, Iowa. The shell has been cut through about an inch above the center; it is thirteen inches in length by seven in width, and has a capacity of nearly two pints.[8] He also describes a large specimen of *Cassis* from a mound in Muscatine County, Iowa.[9]

Long, in his expedition from Pittsburgh to the Rocky Mountains in

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[1] Wyman, in Third Annual Report, Peabody Museum, p. 8.

[2] Foster: Prehistoric Races of the United States, p. 78.

[3] Since the shell here named is quite small it is probable that the specimens found were *Busycons*.

[4] Long's Expedition to the Rocky Mountains, Vol. I, p. 361.

[5] Atwater, in Transactions American Antiquarian Society, Vol. I.

[6] Squier and Davis: Ancient Monuments of the Mississippi Valley, p. 283.

[7] *Ibid.*, p. 284.

[8] Farquharson, in Proceedings of the Am. Association, 1875, page 296.

[9] *Ibid.*, p. 297.

1819, speaks of a large shell which seems to have been reverenced as a kind of oracle. This may have been one of the large, brilliantly-colored fossil *Baculites* so common in the upper Missouri region. His description will be given in full in treating of the sacerdotal uses of shells.

In the Naturalist for October, 1879, Mr. Frey describes a sea-shell drinking vessel, somewhat modified by art, having a length of four and one-half inches. This, with other relics, among which were many shell beads, was found in ancient grave in eastern New York, probably in the Mohawk Valley.

These vessels of shell have also served as models for the primitive potter. The ancient peoples of the middle Mississippi district were extremely skillful in the reproduction of natural objects in clay, and it is not surprising that they should imitate the form of the shell.

In the Peabody Museum is an earthen vessel copied from a shell vessel of the class just described, the characteristic features being all well imitated. It is about nine inches wide, eleven long and four deep. It is neatly made, and ornamented with the red and white designs peculiar to the pottery of this region. It was taken from one of the Stanley mounds, Saint Francis River, Ark.

A small earthen vessel made in imitation of these shell vessels is illustrated in Fig. 2, Plate XXII. It is of the ordinary blackish ware so common in the middle Mississippi district. The general shape of the shell is well represented; the sides, however, are nearly symmetrical and the spire is represented by a central node, surrounded by four inferior nodes. It is four inches wide and five and one-half long. Three others represent shell vessels, somewhat less closely, the spires and beaks being added to the opposite sides of ordinary cups.

SPOONS.

As domestic utensils bivalve shells have held a place hardly inferior in importance to that of the large univalves. Marine and fluviatile varieties have been used indiscriminately, and generally in the natural state, but occasionally altered by art to enhance their beauty or add to their convenience. The artificial utensils do not, however, present a very great variety of form, the alteration consisting chiefly in the carving out of a kind of handle, by which device hot food could be eaten without danger of burning the fingers. The handle, which may be seen in all stages of development, is produced by cutting away portions of the anterior and basal margins of the shell, leaving the salient angle projecting; this angle is then undercut from the opposite sides so that it is connected with the body of the valve by a more or less restricted neck. The outer edge of the handle is frequently ornamented with notches, and in a few cases a round perforation has been made near the anterior tip for the purpose of suspension. In one case a rude design

of small circular depressions has been added to the upper surface. In the finished implement the hinge, ligament, and teeth have been cut away, the thick dorsal margin carefully ground down, leaving a smooth, neat edge, and the anterior point, which was presented to the lips in eating or drinking, was well rounded and polished. The whole surface of the shell in the more finished specimens has been most carefully dressed. Altogether, the fashioning of these spoons must be regarded as a very ingenious performance for savages, and has cost much more labor than would the attachment of a handle, for which purpose it is not improbable the lateral notches may at times have been used. Our collections furnish no examples of marine univalves worked in this manner; a few slightly altered specimens, however, have been reported. Nearly all the specimens of carved spoons that have come to my notice are made from a few species of *Unio*.

It is a curious fact that most of these utensils have been made from the left valve of the shell, which gives such a position to the handle that they are most conveniently used by the right hand, thus indicating right-handedness on the part of these peoples. In the national collection there are two left-handed specimens, one from Nashville, Tenn., and one from Union County, Ky.

Professor Putnam states that he has "examined over thirty of these shell-spoons now in the museum [Peabody], and all are made from the right [left] valves of *Unionidæ*, and so shaped as to be most conveniently used with the right hand."[1]

By reference to Fig. I, Plate XXIV, the probable manner of grasping and using the spoon will be seen. It will also be observed that the left valve of the shell is used to make the right-handed spoon, supposing of course that the point of the spoon is presented to the lips, the hinge corner being much less convenient for that purpose.

In regard to the use of these objects, which have occasionally been taken for ornaments, it should be mentioned that very many of them have been found within earthen vessels placed in the graves with the dead. The vessels, in all probability, were the receptacles of food, the spoons being so placed that they could be used by the dead as they had been used by the living.

The specimen shown in Fig. 3, Plate XXIV, was obtained by Professor Powell, from a mound near Nashville, Tenn. It is made from the left valve of a very delicate specimen of the *Unio ovatus*,[2] and has been finished with more than usual care. The entire rim is artificially shaped, the natural shell being much reduced, and six notches ornament the outside of the handle. The bowl of the spoon is nearly four inches in length and two and one-half in width. Eight other specimens were obtained from the same locality by Professor Powell. All are made from the *Unio ovatus*, one only being left-handed. All are

[1] Putnam, in Eleventh Annual Report, Peabody Museum, p. 235.

[2] I am indebted to Dr. Charles A. White, of the Geological Survey, for the identification of the numerous specimens of *Unionidæ* mentioned in this paper.

inferior in finish to the specimen illustrated. The handles of a number are rudimentary, and the margins and surfaces are but slightly worked.

The spoon illustrated in Fig. 4, Plate XXIV, is made from the left valve of a *Unio alatus* (?) and was obtained from a mound at Madisonville, Ohio. It is an unusually well-finished and handsome specimen, and notwithstanding its fragile character, is well preserved. A portion of the point has, unfortunately, been broken away. The handle is ornamented with four shallow notches, the anterior point being neatly rounded and perforated for suspension. The edges of the utensil have been carefully finished, and both the inner and outer surfaces have been ground down and polished so that all the natural markings are obliterated, and the surface shows the pearly marbling of the foliation. This specimen is figured in an interesting paper,[1] prepared by Mr. Charles F. Low, as an ornament, this use being suggested by its finish and decoration; but as it was found in what was presumably a food vessel, and at the same time resembles so closely the spoons of other localities, I take the liberty of classifying it with them.

One of the most interesting collections of these utensils was made in Union County, Ky., by S. S. Lyon. Our information in regard to this lot of specimens is, unfortunately, quite meager, as Mr. Lyon's report gives them but casual mention.

Fig. 2, Plate XXIV, illustrates the finest of these specimens on a scale of one-half. The shell used is a large specimen of *Unio ovatus*, the bowl of the spoon being about four inches long and three wide. As the right valve has been used, the utensil is left-handed. The handle is ornamented with two marginal notches; the basal point is long and spine-like, and is deeply undercut. The anterior point is beak-like in shape, the nicely made perforation holding, in relation to it, the position of an eye, which, together with the comb-like notches above, gives a pretty close resemblance to a bird's head. The point of the spoon is broken away.

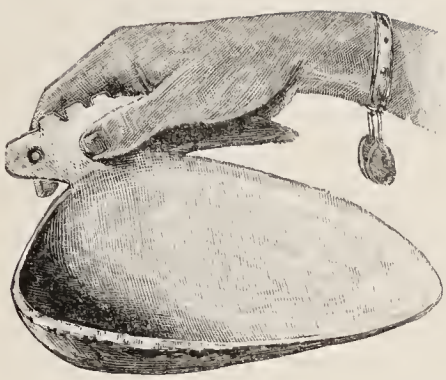
The seven remaining spoons from this locality have a variety of handles, all of which are notched on the outer margin, while a few only are deeply undercut; all have been made from the left valve of the *Unio ovatus* (?) and are of medium size and ordinary finish.

Another specimen in the national collection comes from Henderson County, Ky. The shell used is the *Unio ovatus;* the handle is notched on the outer margin, but is only slightly under-cut; the thick margin of the shell about the hinge has not been removed.

A spoon made from the left valve of a *Unio silignoidens* (?) has recently been obtained from a mound at Osceola, Ark.; it is but slightly worked, having a series of small notches cut in the basal margin, toward the front.

The Natural History Museum of New York contains a specimen of this

[1] Archæological Explorations by the Literary and Scientific Society of Madisonville, 1879.



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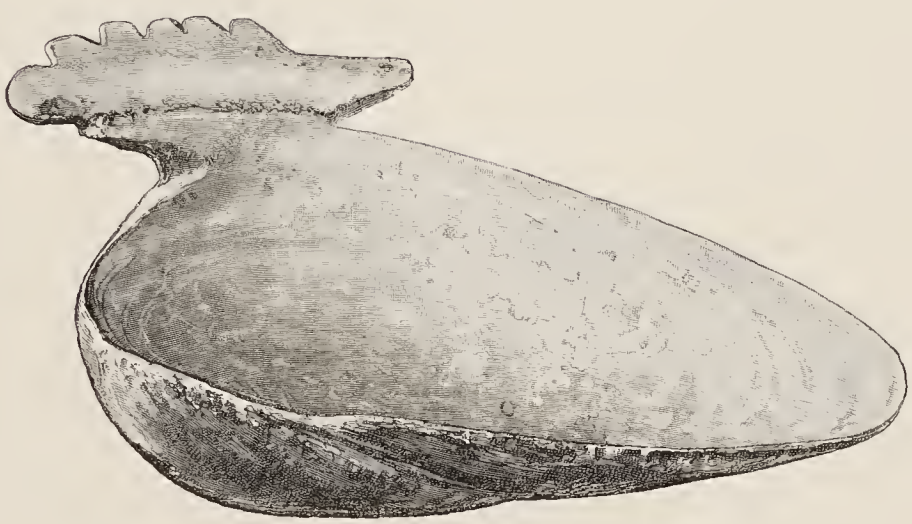

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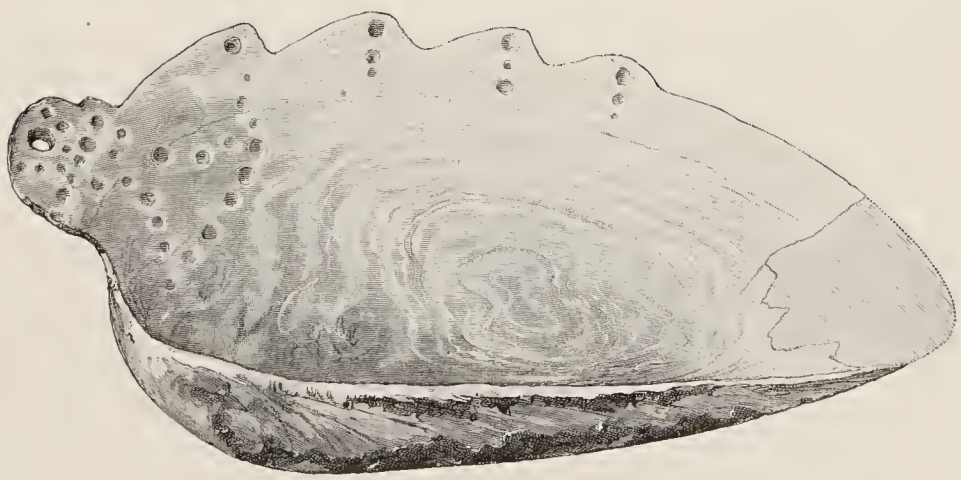

4

1. Manner of grasping spoon.
2. From a mound in Kentucky. ($\frac{1}{2}$).
3. From a mound near Nashville. ($\frac{1}{1}$)
4. From a mound in Ohio. ($\frac{1}{1}$)

SHELL SPOONS.

class, labeled as coming from Georgia. It has a rounded handle, without either perforation or notches.

The Peabody Museum contains a very superior collection, consisting of specimens from several localities. Six of these, made from *Unionidæ*, mostly from the *Unio ovatus*, were obtained from one of the Bowling mounds near Nashville, Tenn.; others crumbled on being handled and were lost. Several others were obtained in the same region.[1] Two more were found in an earthen vessel between two skeletons, in one of the Lindsley mounds at Lebanon, sixty miles east of Nashville.[2]

In a stone-cist mound on the Big Harpeth River, Prof. Joseph Jones found "a few large fresh-water mussel-shells, which were much altered by time. These mussel-shells appeared from their shape to have been artificially carved, and to have been used as ornaments and also as spoons or cups for dipping up food and drink."[3]

Three fine specimens have recently been obtained from graves at Harrisburg, Ark. They are but slightly worked as compared with the more elaborate specimens. The hinge, teeth, and ligaments have been ground down and a portion of the postero-dorsal margin removed, leaving the posterior point and basal margin projecting for a handle. The surfaces are well smoothed. The general outline of the shell is subtriangular; it is three inches wide by four and one-half in length and is probably made from the *Unio cuneatus*.

Beverly gives a plate illustrating two Virginia Indians, man and wife, at dinner; on the mat by the woman is "a Cockle-Shell, which they sometimes use instead of a Spoon." "The Spoons which they eat with, do generally hold half a Pint; and they laugh at the English for using small ones, which they must be forc'd to carry so often to their Mouths, that their Arms are in Danger of being tir'd, before their Belly."[4]

KNIVES.

From a very early date shells must have been employed quite extensively by the ancient Americans as implements, as weapons for war and the chase, as appliances for fishing, as agricultural implements, and as knives, gougers, scrapers, perforators, etc., in a variety of arts. It is a noteworthy fact, however, that our collections do not abound in objects of these classes, and our literature furnishes but little information on the subject. Our interest lies chiefly in such of these objects as have been shaped by the hand of man, but to illustrate their use we will find it instructive to study the various ways in which the natural shells

[1] Putnam, in Eleventh Annual Report, Peabody Museum, p. 334.

[2] *Ibid.*, p. 344.

[3] Jones: Antiquities of Tennessee, p. 64.

[4] Beverly: History of Virginia, 1722, pl. 10, p. 154.

have been employed. In this manner we may trace the origin and development of artificial forms.

As we have seen in the early modification of food utensils the beginning of the art of cutting and shaping shell, which in time led to the manufacture of objects of taste, and probably proved an important step in the evolution of native American art, so in this convenient and workable material, as employed in the mechanical arts, we witness the inception of many important human industries, and in the rude machines constructed from shell probably behold the prototypes of numerous works in stone and metal. It cannot be supposed that such of these objects as we do possess are of very ancient date, as the material is not sufficiently enduring. It is also improbable that such objects would, as a rule, be so frequently deposited in graves, as food vessels or objects of personal display, and objects not so deposited must soon have disappeared.

The early explorers of the American coast make occasional mention of the employment of shells in the various arts. As many of these notices are interesting, and have an important bearing upon the subject under consideration, I will present a number of them here. Among a majority of the American Indians, knives of stone, obsidian, jasper, and flint were in general use, but it would seem that shells artificially shaped and sharpened were also sometimes used for shaping objects in wood and clay, in preparing food, in dressing game, and in human butchery.

Strachey informs us, in volume VI of the Hakluyt Society, that when the omnipotent Powhatan "would punish any notorious enemy or trespasser, he causeth him to be tyed to a tree, and with muscle shells or reedes the executioner cutteth off his joints one after another, ever casting what is cutt off into the fier; then doth he proceede with shells and reedes to case the skyn from his head and face."[1]

Such knives were also ased by Powhatan's women for cutting off their hair.[2]

A number of authors mention the use of shells as scalping-knives. Kalm, speaking of the Indians of New Jersey, says that "instead of knives, they were satisfied with little sharp pieces of flint or quartz, or else some other hard kind of a stone, or with a sharp shell, or with a piece of bone, which they had sharpened."[3]

The Indians encountered by Henry Hudson during his first voyage, in making him welcome, "killed a fat dog, and skinned it in great haste with shells which they had."[4]

Beverly asserts that before the English supplied the Virginia Indians with metallic tools, "their Knives were either sharpen'd Reeds, or Shells,

[1] Strachey, in Hakluyt Society Publications, vol. VI, p. 52.
[2] *Ibid.*, vol. VII, p. 67.
[3] Kalm's Travels, London, 1772, vol. I, p. 341.
[4] Collections New York Historical Society, vol. I, 2nd series, p. 193.

and their Axes sharp Stones bound to the end of a Stick, and glued in with Turpentine. By the help of these they made their Bows of the Locust Tree."[1]

Drake, in his "World Encompassed," speaking of some of the southern tribes of South America, probably the Patagonians, says that "their hatchetts and knives are made of mussel-shells, being great and a foot in length, the brickle part whereof being broken off, they grind them by great labor to a fine edge and very sharpe, and as it seemeth, very durable.[2] * * * Their working tools, which they use in cutting these things and such other, are knives made of most huge and monstrous mussell shels (the like whereof have not been seen or heard of lightly by any travelers, the meate thereof being very savourie and good in eat'ng), which, after they have broken off the thinne and brittle substance of the edge, they rub and grind them upon stones had for the purpose, till they have tempered and set such an edge upon them, that no wood is so hard but they will cut it at pleasure with the same."[3]

According to Sproat, shell knives were used by the Indians of Vancouver's Island in carving the curious wooden images placed over graves.[4]

Ancient shell knives are very rarely found in collections. Such specimens as have come to my notice could as well be classed as scrapers or celts. We will probably not be far wrong in concluding that such implements were used for scraping and digging as well as for cutting. As a rule, knives proper were simply sharpened bivalve shells. The scrapers so frequently mentioned were doubtless often the same, but probably more frequently portions of the lower whorl of the large univalves.

CELTS.

Implements of this class are generally made from the lower part of large univalves. They were probably used in a variety of ways, with handles and without. The spine-like base of the shell forms the shaft, the blade being cut from the broadly expanded wall of the lower whorl. Nearly all the specimens in the national collection have been obtained in this way. In Plate XXV three very fine examples are figured. The specimen illustrated in Fig. 1 is more than usually well fashioned, and is extremely massive, having the proportions and almost the weight of typical stone celts. It is five inches in length, two and three-fourths in width, and nearly one inch through at the thickest part.

[1] Beverly: History of Virginia, 1722, p. 197.
[2] Drake, in Hakluyt Society Publications, vol. XVI, p. 74.
[3] *Ibid*, p. 78.
[4] Sproat's Savage Life, p. 86.

The edge is even and sharp, and but slightly rounded; the beveled faces are quite symmetrical, and meet at an angle of about 35°; the faces are curved slightly, following the original curvature of the shell, and the sides are evenly dressed and taper gently toward the upper end which shows some evidence of battering. The surface of the specimen is slightly chalky from decay. It has been made from a *Strombus gigas*, or some equally massive shell. It was collected at Orange Bluff, Fla., by T. S. Barber. A profile view of the same specimen is presented in Fig. 2. The specimen shown in Fig. 3 was found in Madison County, Ky., and is the only one in the national collection from the Mississippi Valley. It was obtained from a mound, but in what relation to the human remains I have not learned. It is fashioned much like the specimen just described; it is one and a half inches in width at the upper end, and two inches wide near the cutting edge. It has also been made from a very massive shell.

Fig. 4 illustrates a specimen from St. Michael's Parish, Barbadoes, West Indies. It is made from the basal portion of a *Busycon perversum*. The handle is curved and neatly rounded, and the edge is beveled or sharpened on the inside only.

In the national collection there are about twenty of these objects; six are from Tampa, Fla.; four of these are fragmentary; the remaining two are short and triangular, and have been made, one from a *Busycon perversum*, the other from a *Busycon* or *Strombus*. The cutting edge is wide and well sharpened. Two are from Cedar Keys, Fla., and are made from thin-walled specimens of the *Busycon perversum*. The larger is six and one-half inches in length by three in width toward the base; the other is about one-half as large. Both are rudely made, and show the effects of use. Five came from East Pass, Choctawhatchie Bay, Fla. Two of them are fragmentary; one of the entire specimens is very well made, and has a regularly beveled, oblique edge, while another is remarkable in having a curiously worn edge, which is deeply serrated by use or weathering. The majority of these specimens are from ancient shell heaps. Three are from St. Michael's Parish, Barbadoes, West Indies, one of which has already been described.

Professor Wyman, in the Naturalist for October, 1868, illustrates two of these celt-like implements from the fresh-water shell heaps near St. Johns, Fla. One is made from a triangular piece cut from a *Busycon carica*, so as to comprise a portion of the rostrum, which serves as a handle, and a portion of a swollen part of the body, which terminates in the cutting edge of the tool. The sides and apex are smoothed and rounded, while the base is regularly rounded and ground to an edge like that of a gouge, but with the bevel on the inside.

This author states that another specimen, obtained at Old Enterprise, shows clearly that it was detached from the shell by first cutting a groove and then breaking off the fragment. He also gives two views of a small shell celt which, from the exterior markings and the thick

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2

4

3

1. Orange Bluff, Fla. ($\frac{3}{4}$)
2. Orange Bluff, Fla. ($\frac{3}{4}$)
3. Madison County, Ky. ($\frac{3}{4}$)
4. Barbadoes, W. I. ($\frac{3}{4}$)

SHELL CELTS.

ridge on the inside, is thought to have been cut from the base of a *Strombus gigas*. "The broad end is ground to a blunt edge like that seen in most of the stone chisels from the other States, and the other is ground to a blunt point."

These implements are frequently mentioned by early explorers. In Plate 12 of the "Admiranda Narratio," an Indian is represented[1] with a shell implement, scraping away the charred portions from the interior of a canoe which is being hollowed out by fire. The same implement was employed for removing the bark from the tree trunks used.

Catlin, in speaking of the Klahoquat Indians of Vancouver's Island, says that "a species of mussel-shell of a large size, found in the various inlets where fresh and salt water meet, are sharpened at the edge and set in withes of tough wood, forming a sort of adze, which is used with one hand or both, according to its size; and the flying chips show the facility with which the excavation is made in the soft and yielding cedar, no doubt designed and made for infant man to work and ride in."[2]

Wood, speaking of the Indians of New England, says that "their Cannows be made either of Pine-trees, which before they were acquainted with *English* tooles, they burned hollow, scraping them smooth with Clam-shels and Oyster-shels, cutting their out-sides with stone-hatchets."[3]

The method of hafting these implements, when used for axes and adzes, was doubtless the same as that employed for stone implements of similar shapes. This is illustrated in Fig. 2, Plate XXVII, the handle being securely fastened by cords or sinews. It will be seen that but one of the specimens mentioned comes from the interior, and that from Madison County, Ky.

SCRAPERS.

The great majority of the scraping implements obtained from the mounds, graves, and shell heaps are simply valves of *Unio* or clam-shells, unaltered except by use; yet there is a widely distributed class of worked specimens, which have been altered by making a rough perforation near the center of the valve, and by the grinding down and notching of the edges. A very fine specimen is illustrated in Fig. 3, Plate XXVI. It is formed of the left valve of a *Unio tuberculosus*. It was taken from a mound at Madisonville, Ohio, and is now in the national collection. A similar specimen from the same locality is illustrated in an account of the exploration conducted by the Scientific and Literary Society of Madisonville.[4] I have seen four other fine speci-

[1] De Bry: Collectio Pars 1. "Admiranda Narratio," Plate 12.

[2] Catlin: Indians of the Rocky Mountains and Andes, page 101.

[3] Wood: New England Prospect, p. 102.

[4] Archæological Explorations by the Literary and Scientific Society of Madisonville, Ohio, Part I, p. 17.

mens from the same locality; all are made of the shell of the *Unio tuberculosus* (?). It will be seen by reference to Fig. 3 that the posterior point of the shell is much worn, as if by use, while at the opposite end, near the hinge, the margin has been slightly notched. The large specimen, figured in the Madisonville pamphlet, as well as all other examples from this locality, are also much worn at the posterior end, and slightly notched on the anterior margin. The perforations are roughly made, and nearly one-half an inch in diameter.

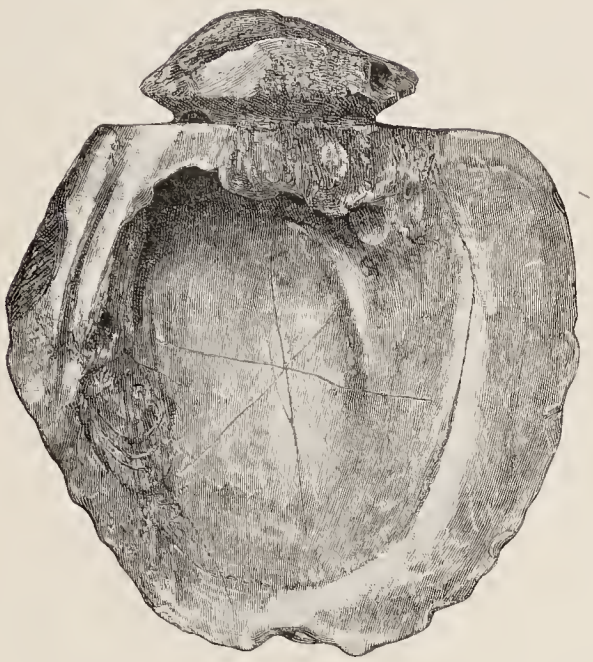
I have carefully examined all the specimens of this class within my reach, probably twenty-five in all, most of which are in the national collection, and I find them all very much alike. They are from two to five inches in length, have rude central perforations, and are worn by use at the posterior point, and notched on the anterior margin. The blunting of one end by use calls for no explanation, but the purpose of the perforation is a little obscure. It may have been used for convenience in transportation, but more probably for attaching a handle. On discovering that a notch had in all cases been made at the upper end, I became convinced that the latter use was intended. Whether the supposed handle has been long or short, or attached longitudinally or transversely, I am unable to determine.

In Plate XXVI, Figs. 4 and 5, two methods of hafting are illustrated. If used for striking, the long handle would be the more suitable, but if for scraping, dressing skins, scaling fish, or shaping wood or clay, the handle suggested in Fig. 5 would be the most convenient. The clam-shell agricultural implements, so frequently mentioned by explorers along the Atlantic coast, were attached to handles in the manner of hoes or adzes, as shown in Fig. 2, Plate XXVII. It is possible that the specimens under consideration may have been hafted in this manner.

A perforated valve of a *Unio gibbosus*, which has probably been used as a knife or scraper, is shown in Fig. 1, Plate XXVII. It was obtained from a cave near Nashville, and is now in the national collection.

Another interesting variety of shell implement is shown in Fig. 1, Plate XXVI. It was obtained from the Oconee River, near Milledgeville, Ga., and is made from the left valve of a *Unio vericosus*. Its perfect state of preservation indicates that it is of quite recent manufacture. A deep, sharply cut groove encircles the beak and hinge of the shell, and the posterior margins are considerably worn. A few shallow lines have been engraved on the smooth convex surface of the valve. The position of the groove suggests the method of hafting shown in Fig. 2.

Fig. 6, Plate XXVI, represents a perforated *Pecten*, which may have been used as an implement or as part of a rattle. It was collected by Mr. Webb on the west coast of Florida.



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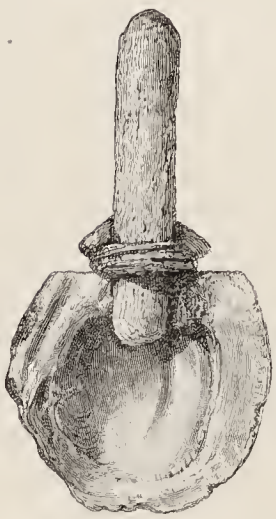

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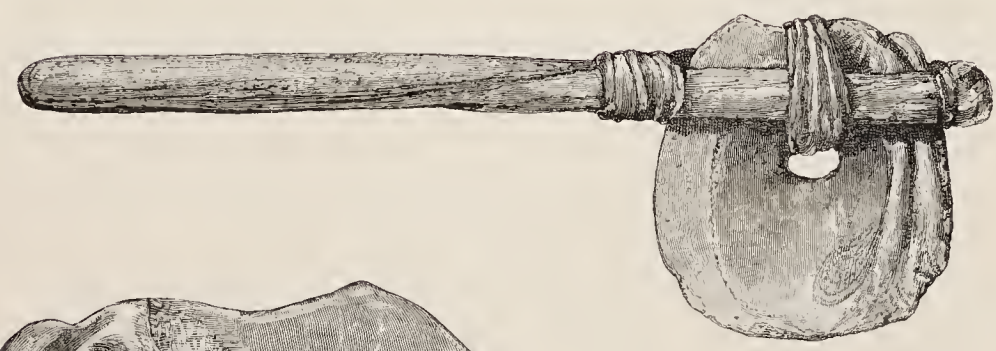

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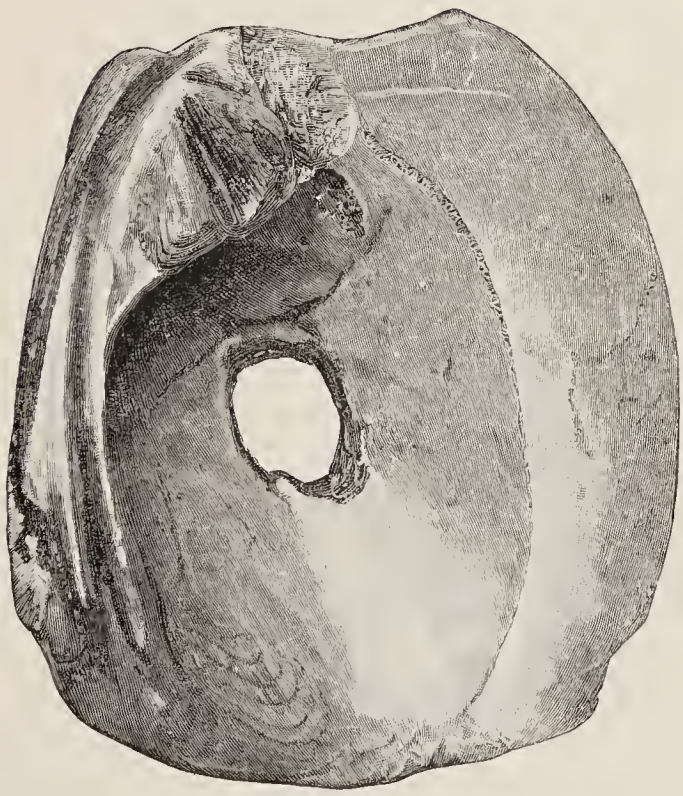

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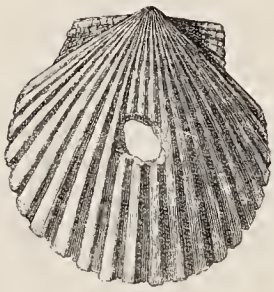

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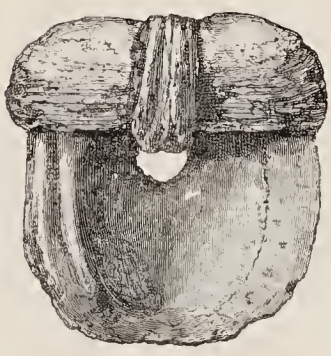


5

1. Scraper, Georgia. ($\frac{1}{4}$)
2. Probable manner of hafting.
3. Implement from a mound, Ohio. ($\frac{1}{4}$)
4. Probable manner of hafting.
5. Probable manner of hafting.
6. Perforated peeten, Florida. ($\frac{1}{3}$)

SHELL IMPLEMENTS.

AGRICULTURAL IMPLEMENTS.

The first explorers of the Atlantic seaboard found many of the tribes cultivating the soil to a limited extent, corn being the chief product. The methods and appliances were exceedingly primitive, and the implements employed, whether wood, bone, stone, or shell, possess but little interest to art.

Unworked shells, lashed to rude handles, served all the purposes as well as if wrought out in the most fanciful manner. The large, firm valves of clam-shells were most frequently used, as the following extracts will show.

"Before the Indians learned of the English the use of a more convenient instrument, they tilled their corn with hoes made of these shells, to which purpose they are well adapted by their size."[1]

A further reference to this shell is found in Wood's New England Prospect: "The first plowman was counted little better than a Juggler: the *Indians* seeing the plow teare up more ground in a day, than their Clamme shels could scrape up in a month, desired to see the workemanship of it, and viewing well the coulter and share, perceiving it to be iron, told the plowman, hee was almost *Abamocho*, almost as cunning as the Devill."[2] And again the same author says: "An other work is their planting of corne, wherein they exceede our *English* husband-men, keeping it so cleare with their Clamme shell-hooes, as if it were a garden rather than a corne-field, not suffering a choking weede to advance his audacious head above their infant corne, or an undermining worme to spoile his spurnes."[3]

Other writers make but the most casual mention of this subject. De Bry gives, in Plate XXI, Vol. II, a picture in which a number of natives are engaged in cultivating their fields. In Fig. 3, Plate XXVII, I give an enlarged cut of one of the implements employed; the original drawing has probably been made from memory by the artist, and the cut serves no purpose except to give an idea of the general shape of the implement and to suggest the manner of hafting, if indeed the implement is not made wholly from a crooked stick.

FISHING APPLIANCES.

The use of shell in the manufacture of fishing implements seems to have been almost unknown among the tribes of the Atlantic coast, and with the exception of a few pendant-like objects, resembling plummets

[1] Mass. Hist. Soc. Coll., vol. VII, p. 193.
[2] Wood: New England Prospect, p. 87.
[3] Wood: New England Prospect, p. 106.

or sinkers of stone, nothing has been obtained from the ancient burial mounds of the Mississippi Valley. Hooks of shell, however, are very plentiful in the ancient burial-places of the Pacific coast, and are frequently so well shaped as to excite our admiration. Hooks and other fishing apparatus, in whole or in part made of shell, are extensively employed by the present natives of the Pacific islands and among the numerous tribes of the northwest coast, although bone and ivory are in much higher favor for these purposes.

We cannot say with certainty for what purpose the various sinker-like objects of shell were used. In all cases they are so perforated or grooved as to be suspended by a string; but it is the custom of all savage peoples to employ very heavy pendants as ornaments for the ears or for suspension about the neck, and where stone could be secured for such ordinary uses as the sinking of nets or lines, it seems improbable that objects of shell, which form superb ornaments, would be so employed.

That hooks were used to some extent by the Atlantic coast Indians is proved by the association of bone hooks with other ancient relics. I am not aware that their use has been noticed by early writers, who describe at length, however, the capture of fish by means of arrows, spears, and nets. The ancient Mexican manuscripts contain many drawings showing the use of nets in fishing, but the use of hooks and lines is not suggested.

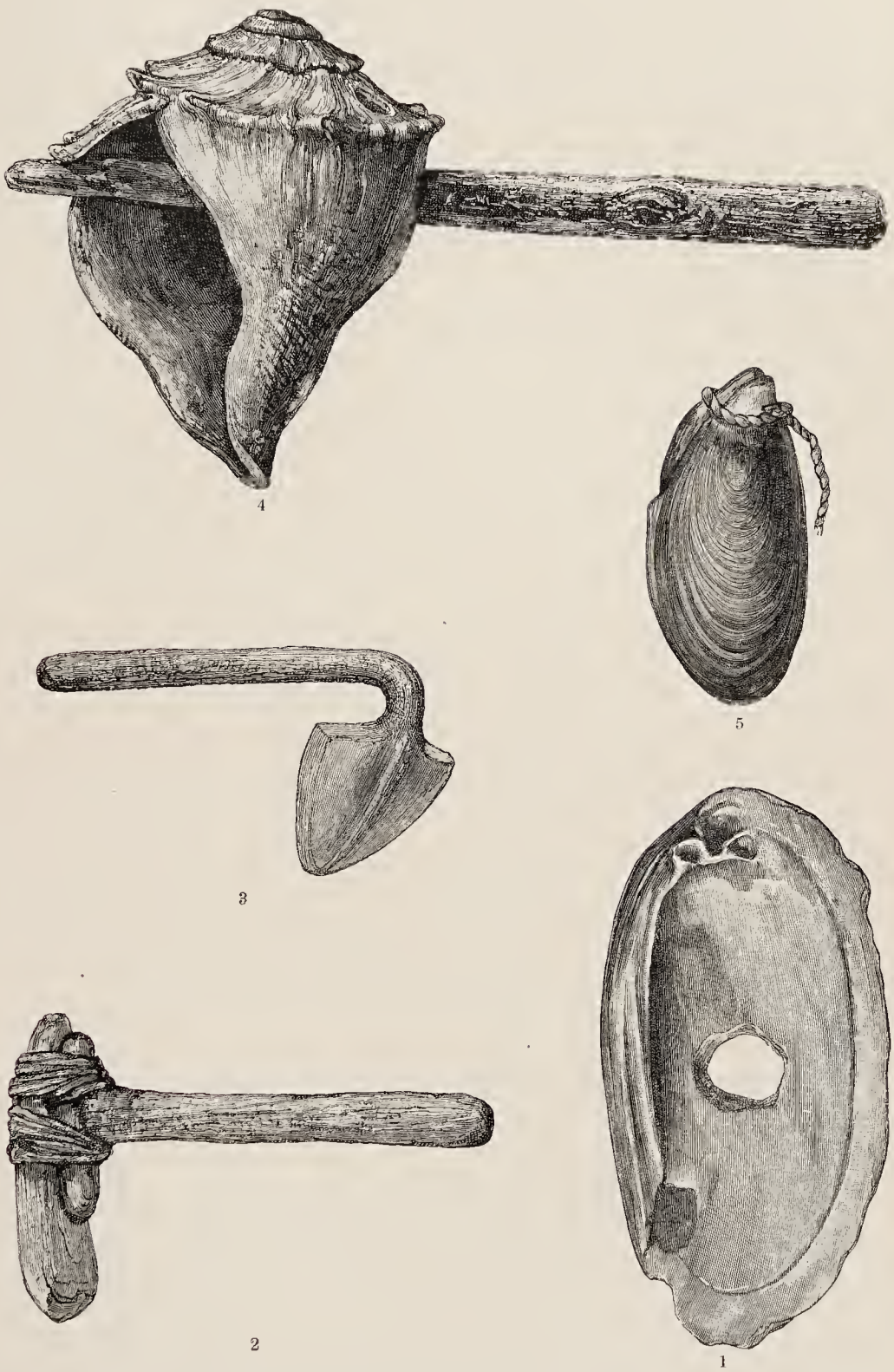
In the absence of positive proof as to the exact manner in which the plummet-like objects were utilized, I shall for the present follow the custom of the best authors and classify the heavier specimens as sinkers. The smaller specimens will be described as pendant ornaments.

In Fig. 8, Plate XXVIII, a very handsome specimen from a refuse heap on Blennerhasset Island, Ohio River, is shown. It has been cut from the columella of a *Busycon perversum*, the reverse whorl being indicated by the well-preserved spiral groove, and was suspended by means of a small, well-made perforation near the upper end. The surface is weathered and chalky with age.

Another specimen, from the same locality, differs but slightly from this; the perforated end is broken away; the surface is deeply weathered, and the more compact laminæ stand out in high relief.

Two specimens from Sarasota Bay, Fla., resemble these very closely in shape and size; instead of a perforation, however, they are grooved near the upper end. They are made from the columellæ of the *Busycon perversum*. One of them is shown in Fig. 9, Plate XXVIII.

It is possible that a number of the small shells usually supposed to be perforated for use as ornaments have been used for sinkers. One such specimen, collected by Professor Velie in Florida, is preserved in the national collection. It is made from an almost entire specimen of a small but compact univalve—a dextral-whorled *Busycon* or a *Strombus*. A shallow groove has been cut near the basal point for the purpose of attaching a line.



1. Shell implement, Tennessee.
2. Probable manner of hafting celt.
3. Implement illustrated in De Bry.
4. Shell club-head, Florida
5. Shell implement, Peru.

SHELL IMPLEMENTS.

A fourth specimen, from Florida, is represented by a cast presented by Professor Velie; it is three inches in length and nearly one inch in diameter, and has been derived from the columella of a *Busycon perversum*. It has a broad groove near the upper end, with a long, sloping shoulder, the body being somewhat conical below. Other specimens of similar character have recently been added to the national collection. A grooved specimen of medium size was obtained from a mound at Madisonville, Ohio, and is figured by the explorers.[1] A few smaller specimens come from New York, and others from Kentucky, but they were probably intended for ornaments, and as such I prefer to class them.

From the Pacific coast we have a large number of examples, one of the finest being illustrated in Fig. 7, Plate XXVIII. It is a flattish, somewhat pear-shaped pendant, and has a neatly cut groove near the upper end. It was collected by Bowers on the island of Santa Rosa, Cal., and was probably made from a *Pachydesma* or *Amiantis*.

A new-looking specimen from Santa Barbara, carved from a flat bit of pearly *Haliotis*, represents a fish, the mouth, gills, body, and tail being distinctly shown. It may have been used as a bait.

By far the most interesting examples of fishing implements of ancient date have been obtained from graves in California ; these are well represented in the collections made by Schumacher and Bowers. A number of specimens may be seen in the National Museum; one sinker from this collection has already been described. Fish-hooks, however, constitute the great majority of the specimens, and many of them are of such unprecedented forms that they have been mistaken for ornaments. The marked peculiarity consists in the great width of the body of the hook, and the deeply involuted character of the barbless point, making it seem impossible that a fish should be impaled at all. It may be that this hook was intended only as a contrivance for securing bait, and that the fish, having swallowed this, was unable to disgorge it, and in this way was secured by the fisherman.

In Plate XXVIII, three of these hooks are illustrated. The method of fastening them to the line is not well known, and the form does not suggest it, except in a few cases in which the shaft is enlarged slightly at the upper end. The head is never perforated, but is frequently pointed, and may have been inserted in a head of some other material and secured by means of asphaltum. The fact that portions of this material still adhere to the upper part of the shaft confirms this conjecture. None of these hooks are barbed. Similar hooks of bone, exhibited in the national collection, have barbs on the outside, near the point. Hooks resembling these are used by some tribes to secure the ends of strings of beads.

Prof. F. W. Putnam has described a number of these hooks which belong to the Peabody Museum. The largest is two and three-fourths

[1] Archæological Explorations by the Literary and Scientific Society, part II, p. 38, fig. 31.

inches in length and one inch wide at the middle of the shank. These came from San Clemente, San Miguel, and Santa Cruz islands, and the mainland about Santa Barbara, and are accompanied by stone implements used in their manufacture.[1]

The natives of Tahiti had fish-hooks made of mother-of-pearl, and every fisherman made them for himself. They generally served for the double purpose of hook and bait. "The shell is first cut into square pieces, by the edge of another shell, and wrought into a form corresponding with the outline of the hook by pieces of coral, which are sufficiently rough to perform the office of a file; a hole is then bored in the middle; the drill being no other than the first stone they pick up that has a sharp corner; this they fix into the end of a piece of bamboo and turn it between the hands like a chocolate mill; when the shell is perforated, and the hole sufficiently wide, a small file of coral is introduced, by the application of which the hook is in a short time completed, few costing the artificer more time than a quarter of an hour."[2]

The specimens illustrated are made from the thicker portions of species of the *Haliotis* or of the valves of the dark purplish *Mytilus californianus*. They are handsome objects, their surfaces being well rounded and polished. In the collection there are specimens which illustrate very well the process of manufacture. A series of these is given in Plate XXVIII. Fig. 1 shows a small fragment broken out roughly from the shell, probably by a stone or shell implement. Fig. 2 shows a similar specimen in which an irregular perforation has been made. In Fig. 3 we see a considerable advance toward completion; the hole has been enlarged by rubbing or filing with some small implement, and the outline approximates that of the finished hook. Figs. 4, 5, and 6 represent typical examples of the completed hooks. These range in size from one-half to three inches in length, the width being but slightly less. The skill acquired in the manufacture of such objects of use is of the greatest importance in the development of art. It is only through the mastery of material thus engendered that the arts of taste become possible.

WEAPONS.

It would hardly seem at first glance that shells or shell substance could be utilized for weapons to any advantage. A close examination, however, of some of the more massive varieties will convince us that they could be made available. The specific gravity of some varieties, such as the *Strombus* and *Busycon*, is equal to that of moderately compact stone, and with their long, sharp beaks they would, with little modification, certainly make formidable weapons.

Dr. Charles Rau seems to have been the first to call attention to the

[1] Putnam, in Explorations West of the 100th Meridian, vol. VII, p. 223.

[2] Cook: Voyage Around the World, 1770, vol. II, p. 218.

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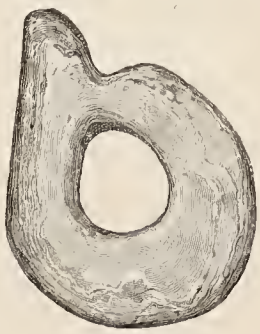

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1, 2, 3. Manufacture of hooks.
4, 5, 6. Hooks from graves, California.
7. Pendant or sinker, California.
8, 9. Pendants, Atlantic slope.

SHELL FISHING APPLIANCES.

($\frac{1}{1}$)

use of shells as club-heads by the tribes of Florida. In his valuable paper on the archæological collections of the National Museum he gives a very good description, which I copy in full:

"It further appears that the Florida Indians applied shells of the *Busycon perversum* as clubs or *casse-tetes* by adapting them to be used with a handle, which was made to pass transversely through the shell. This was effected by a hole pierced in the outer wall of the last whorl in such a manner as to be somewhat to the left of the columella, while a notch in the outer lip, corresponding to the hole, confined the handle or stick between the outer edge of the lip and the inner edge of the columella. The anterior end of the canal, broken off until the more solid part was reached, was then brought to a cutting edge nearly in the plane of the aperture. A hole was also made in the posterior surface of the spire behind the carina in the last whorl, evidently for receiving a ligature by means of which the shell was more firmly lashed to the handle."[1]

Mention of these objects is also made by Knight in a recent pamphlet, the method of hafting being illustrated.[2]

Professor Wyman, in the Naturalist for 1878, describes and illustrates an object of this class, made from a *Busycon*, which he is inclined to regard as one of the conch-shells said to have been used by the Indians for trumpets. It is presumably from one of the shell heaps on the St. Johns River, Fla.[3]

In Fig. 4, Plate XXVII, I illustrate one of the National Museum specimens. The posterior point is much reduced by grinding, the apex and nodes are somewhat battered, and the whole surface of the shell is worn and discolored. There are about a dozen specimens in the National collection; in nearly all cases they are made from heavy walled specimens of the *Busycon perversum*, and range from three to eight inches in length. They are described as coming from three localities, St. Johns River, Clearwater River, and Sarasota Bay, Fla. All were probably obtained from shell heaps, and although ancient, two of the specimens still retain rude and insignificant-looking handles of wood.

It will be seen from the foregoing that shells have actually been employed as weapons, a use, however, which would probably never have been suggested but for the great scarcity of stone along the southern coast.

TWEEZERS.

A rather novel use of shells by the ancient Indians is mentioned by early writers. The two valves of small mussels or clams were made to do service as tweezers for pulling out their hair.

[1] Rau: Archæological Collection of the National Museum, page 67.
[2] Knight: Savage Weapons at the Centennial Exhibition, page 10.
[3] Wyman: American Naturalist for October, 1878, p. 453.

Adair, speaking of the Choctaws, says that "both sexes pluck all the hair off their bodies with a kind of tweezers, made formerly of clam shells."[1] Strachey states that shells were used by the Virginian Indians for cutting hair. Beverly says of the Virginia Indians that they "pull their Beards up by the Roots with Muscle-shells, and both Men and Women do the same by the other Parts of their Body for Cleanliness sake."[2] Heckewelder states that "Before the Europeans came into the country their apparatus for performing this work consisted of a pair of mussel-shells, sharpened on a gritty stone, which answered the purpose very well, being somewhat like pincers."[3]

Fig. 5, Plate XXVII, reproduced from a plate in the Necropolis of Ancon[4] represents two small *Mytilus* shells pierced at the beak and bound together with a cord. They were found in one of the ancient graves of Peru, and may have been used for a similar purpose.

[1] Adair: History of the American Indians, p. 6.
[2] Beverly: History of Virginia, p. 140.
[3] Heckewelder's Indian Nations, p. 205.
[4] Reiss and Stübel: Necropolis of Ancon, Plate 83, fig. 17½.

ORNAMENTS.

PINS.

Having studied the application of shell material to the various utilitarian arts, I turn to the consideration of what may, with more or less propriety, be called the arts of taste.

The skill acquired by the primitive artisan in shaping the homely spoon or the rude celt served a good purpose in the more elegant arts, and opened the way to a new and unique field for the development and display of the remarkable art instincts of these savages. It probably required no great skill and no very extended labor to fashion the various utensils and implements of the outer walls of the univalves or the thin valves of clams and mussels; but to cut out, grind down, and polish the columellæ of the large conchs required a protracted effort and no little mechanical skill. Of the various objects shaped from the columellæ, beads are probably the most important; but a large class of pin-shaped articles naturally come first, as they consist of entire or nearly entire columellæ dressed down to the desired shape.

The use of these objects is still problematical. As they are found in most cases deposited with human remains, they were doubtless highly valued. They must have served a definite purpose in well-established and wide-spread customs, as they are found distributed over a district almost co-extensive with that occupied by other shell vestigia of marine origin.

Let us first study the process of manufacture. A considerable number of the larger species of marine univalves have been brought into requisition. Various species of *Busycon*, *Strombus*, and *Fasciolaria* offer almost equal facilities; the former, however, seems to have been decidedly the favorite, the *Busycon perversum* having furnished at least three-fourths of the columns used. This result may be attributed, however, to the fact that, for reasons already mentioned, the *perversum* was so universally employed for vessels, the axes extracted from these being then ready for further manipulation. The outer case of the shell being somewhat fragile it is probable that the sea has very frequently broken it away, leaving the dismantled columella to be washed ashore in a shape convenient for manufacture or for inland trade. If the demand for these objects was very great, it is to be presumed that on shores where they abound these shells were broken open and the columns extracted for purposes of traffic. The State of Tennessee is found to be the great store-house of these as well as other ancient objects of shell. This is probably owing to two causes: first, that far inland, where they were difficult to procure, and very costly, they were highly esteemed,

and hence consecrated to the use of the dead; and, second, the conditions under which they were buried had much to do with preserving them from rapid decay, while on the coast or when exposed to the atmosphere they soon disappeared.

An interesting series of specimens illustrating the various stages of manufacture of articles from the columella is presented in Plate XXIX. In Fig. 1 a section of a *Busycon perversum* is given. The position of the columella and its relations to the exterior parts may be clearly seen. The reverse whorl of the spire will be noticed, and the consequent sinistral character of the groove. Fig. 2 illustrates the extracted columella in its untrimmed state. A similar specimen is shown in Fig. 3, Plate XXXI. It was obtained from the site of an old Indian lodge on the island of Martha's Vineyard. This, with a number of smaller specimens, may be seen in the National Museum. They show no signs of use, and were probably destined for manufacture into pins or beads.

Columellæ in this state are very frequently found in the mounds and graves of the interior States; a majority probably belong to the *Busycons*, but a considerable number are derived from the *Strombidæ*. A few specimens of large size may be seen in the national collection.

Fig. 3 represents a roughly dressed pin, of a type peculiar to the Pacific coast.

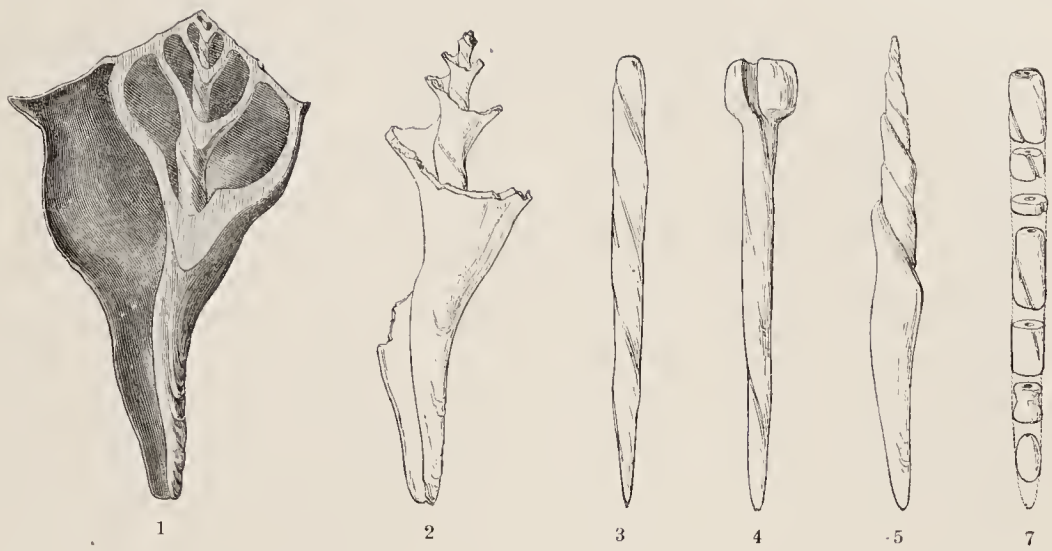
Fig. 4 illustrates a completed pin of the form most common in the middle Mississippi province.

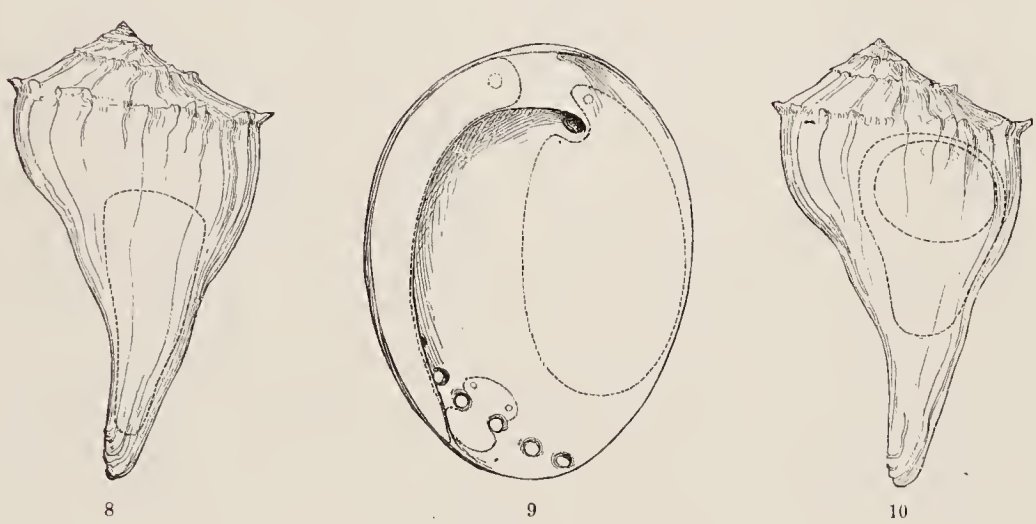
Fig. 5 shows a rather rare form of pin, pointed at both ends. Bone pins of this form are quite common.

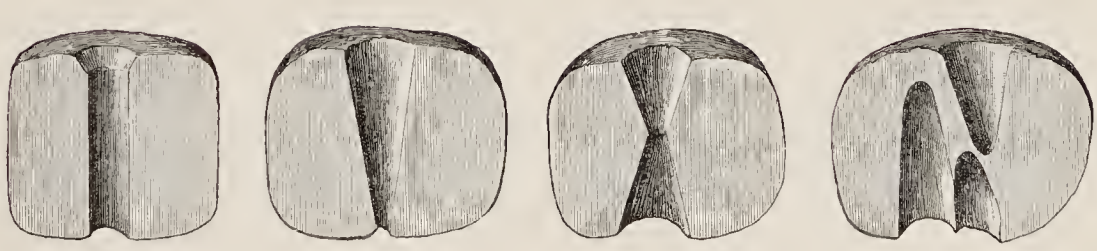
Fig. 6 represents a nearly symmetrical cylinder.

Fig. 7 illustrates the manner of dividing the cylinders into sections for beads.

In 1881 some very important additions to the National Museum were made, from the mounds of Tennessee. These include a great wealth of objects in shell. From the McMahon mound at Sevierville, Tenn., there are a dozen shell pins, all made from the *Busycon perversum*. The entire specimens range from three to six inches in length; two are fragmentary, having lost their points by decay. In shape these objects are quite uniform, being, however, as a rule, more slender in the shaft than the average pin. The heads range from one-half to one inch in length, and are generally less than one inch in diameter. They are somewhat varied in shape, some being cylindrical, others being conical above. The shaft is pretty evenly rounded, but is seldom symmetrical or straight. It is rarely above one-half an inch in diameter, and tapers gradually to a more or less rounded point. The groove of the canal shows distinctly in all the heads, and may often be traced far down the shaft. In a number of cases the surface retains the fine polish of the newly-finished object, but it is usually somewhat weathered, and frequently discolored or chalky. These specimens were found in the mounds along with deposits of human remains, and generally in close proximity to the head; this fact suggests their use as ornaments for the hair.







1. Section of *Busycon perversum*.
2. Roughly trimmed columella.
3. Headless pin, western form.
4. Tennessee form.
5. Pin pointed at both ends.
6. (Omitted)
7. Manner of cutting into beads.
8. Derivation of a celt from Busycon.
9. Derivation of ornaments from Haliotis.
10. Derivation of ornaments from Busycon.
11. Bead with cylindrical, countersunk perforation.
12. Bead with conical perforation.
13. Bead with bi-conical perforation.
14. Bead imperfectly perforated.

MANUFACTURE OF IMPLEMENTS AND ORNAMENTS.

Two illustrations are given in Plate XXX. Fig. 1 represents a fine example, six and a quarter inches in length. The head is deeply grooved, and is apparently cut from the middle part of the columella, the shaft being formed from the spine-like basal point. The spiral canal, which is clearly defined, makes but one revolution in the entire length of the pin. In Fig. 5 a somewhat similar specimen is represented. Two fine specimens come from a mound on Fain's Island, Tennessee River. The larger one is made from the columella of some heavy shell, probably the *Strombus gigas*. The head is cylindrical, and the shaft large, but imperfect. The smaller is a little more than two inches in length, the head being small and conical, and the point more than usually blunt. Another specimen was obtained from a mound at Taylor's Bend, near Dandridge, Tenn. The head is almost spherical, and the point broken off; the whole surface is new looking and highly polished. A number of bone pins pointed at both ends were obtained from Fain's Island, besides many perforators and other well-made implements of bone.

Prof. C. C. Jones describes[1] a number of shell pins without mentioning localities, stating, however, that such pins have been obtained from a mound on the Chattahoochie River, below Columbus, Ga. He publishes illustrations of two varieties. One, of the ordinary type, is five and a half inches in length, one inch of that distance being occupied by the head, which is an inch and a quarter in diameter. The shank is an inch and a half in circumference, and, while tapering somewhat, is quite blunt at the point. The other is of somewhat rare occurrence, being pointed at both ends. An example of this variety is given in Fig. 4, Plate XXX. They are usually small and short, seldom exceeding three inches in length.

In the national collection there are ten fine pins, obtained by C. L. Stratton from a mound on the French Broad River, fifteen miles above Knoxville, Tenn. Four only are made from the *Busycon perversum*. The largest specimen has a very large, cylindrical head, with an extremely deep groove. The shaft has been at least five inches long, and is nearly one-half an inch in diameter. Another fine specimen is five inches long, very slender, and nearly symmetrical. A small, almost headless pin, not quite one and a half inches in length, is peculiar in having a longitudinal perforation. It has probably been strung as a bead. A fourth specimen is five and three-quarters inches in length. The head is well rounded above, and the shaft tapers gradually to a slender symmetrical point. The other specimens from the same locality are in an advanced stage of decay, the points being entirely destroyed.

The Peabody Museum contains a large number of very fine specimens of this class. The most important of these were obtained from the Brakebill, Lick Creek, and Turner mounds of Tennessee, by the Rev. E. O. Dunning. The largest of these is upward of six inches in length. An unusually symmetrical and well-preserved specimen from the Lick

[1] Jones: Antiquities of the Southern Indians, pp. 234, 518.

Creek mound is nearly seven inches in length. One specimen only in this collection differs from the type already described; this has been made from a dextral-whorled shell; the head is somewhat spherical, but is unusual in having an umbonate projection at the top. It is illustrated in Fig. 6, Plate XXX.

Another small pin, which is about one and one-half inches in length, has a poorly defined head, and would seem useless for the purposes ordinarily suggested for the larger specimens.

A recent collection from Pikeville, Tenn., includes a number of specimens made from the spike-like base of the *Busycon perversum*. They are roughly finished, and taper to a point at both ends. The larger ones are six inches in length and nearly one inch in diameter. All are perforated longitudinally. This perforation is neatly made and about one-eighth of an inch in diameter. In one specimen which has been broken open two perforations may be seen running almost parallel with each other, as if they had been bored from opposite ends and had failed to meet. The length of these perforations is quite remarkable, and it is difficult to understand how, with the primitive tools at the disposal of these people, a uniform diameter could be given throughout. One of these objects is shown in Fig. 3, Plate XXX.

Other States besides Tennessee have furnished a limited number of shell pins. Their occurrence in a mound near Columbus, Ga., has already been mentioned.

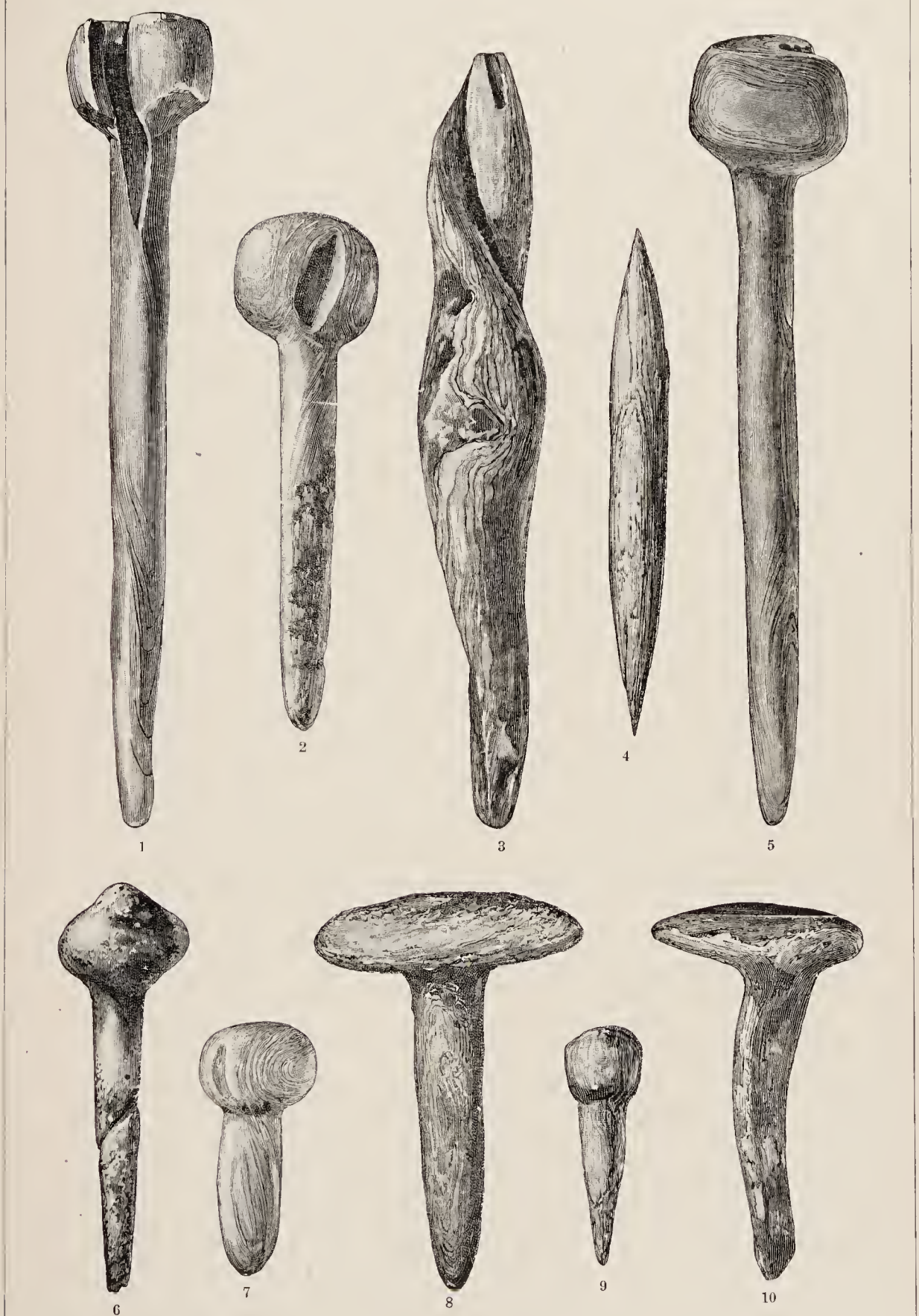
The national collection contains a fine specimen from Macon, Ga., collected by J. C. Plant. The Peabody Museum has a number from mounds on the Saint Francis River, Ark. One of these is illustrated in Fig. 8, Plate XXX. They differ from the pins heretofore described, being in all cases unsymmetrical. The shaft is flat and somewhat curved, and joins the mushroom-shaped head near one edge. This results from the peculiar shape of the portion of the shell from which the pin is derived, the head being cut from the peripheral ridge and the shaft from the body below or the shoulder above. Two specimens of this class have recently been obtained from a mound at Osceola, Ark. A profile view of one is shown in Fig. 10, Plate XXX.

A pin of this class, from a burial mound at Black Hammock, Fla., is described and illustrated by Professor Wyman.[1] From the fact of its being perforated at the point, he regards it as a pendant ornament. He states that it is cut from the suture, where a whorl joins the preceding one. In this respect it resembles the specimens from Arkansas. It is made from a *Busycon perversum*.

In the National Museum we have two specimens from Florida. One of these, from Pensacola, is illustrated in Fig. 2, Plate XXX, and is of the ordinary form. The other is a short, broad-headed specimen, illustrated in Fig. 7, Plate XXX.

In the Peabody Museum are two small specimens of the ordinary type,

[1] Wyman, in the American Naturalist, November, 1868, Plate X, p. 455.



PINS—EASTERN FORMS.

from a mound near Jamestown, Va. One of these, a small, pointed variety, is given in Fig. 9, Plate XXX.

In Volume VI of Schoolcraft's Indian Tribes, a pin, probably of shell, is shown in a plate illustrating relics from South Carolina.

A few localities have furnished bone, stone, and clay pins similar to these in shape. Specimens of the latter may be found both in the National and Peabody museums. They were probably intended as stoppers for bottle-shaped earthen vessels. Bone pins are generally headless, and have in most cases been intended as implements for perforating and for sewing. Mr. Schumacher found a pin-like object of bone on the island of San Clemente, Cal. It resembles the shell pins pretty closely, having a somewhat spherical head. It is figured by Professor Putnam in a recent work.[1]

As already stated, the exact uses to which these pins were applied by the mound-building tribes are unknown; various uses have been suggested by archæologists. The favorite idea seems to be that they were hair-pins, used by the savages to dress and ornament the hair. It would seem that many of them are too clumsy for such use, although when new they must have been very pretty objects. The shorter and headless varieties would certainly be quite useless. Similar objects of bone or ivory, often tastefully carved, are used by the natives of Alaska for scratching the head, although it seems improbable that this should have been their most important function.

Professor Dall suggests that some of the shell pins may have been used as were the "blood-pins" of the Indians of the northwest coast. When game is killed by an arrow or bullet, the pin is inserted in the wound, and the skin drawn and stitched over the flat head, so that the much valued blood may be prevented from escaping. A small, very tastefully carved specimen of these pins is given in Plate XXXI, Fig. 4. It was obtained from the Indians of Oregon. A similar specimen comes from San Miguel Island, Cal.

It is possible that they may have served some purpose in the arts or games of the ancient peoples; yet when we come to consider the very great importance given to ornaments by all barbarians, we return naturally to the view that they were probably designed for personal decoration.

From the Pacific coast we have shell pins of a very different type They also are made from the columellæ of large marine univalves, and were probably used as ornaments, doubtless to a great extent as pendants. These objects have been obtained in great numbers from the ancient graves of the California coast, at Santa Barbara, at Dos Pueblos, and on the neighboring islands of Santa Clara, Santa Catalina, San Clemente, and Santa Rosa. Professor Dall is of the opinion that the shell mostly used is the *Purpura crispata*, the smaller specimens probably being derived from the *Mitra maura*.

[1] Putnam, in Surveys West of the 100th Meridian, Vol. VII, p. 230.

Such a very concise description of these objects is given by Prof. F. W. Putnam in a recent paper that I beg leave to quote it here, omitting his references to figures: "A columella was ground down to the required size and shape, and made into a pendant by boring a hole through the larger end. In order to make this pendant still more attractive, the spiral groove is filled with asphaltum, or a mixture of that material and a red pigment. Sometimes the spiral groove was so nearly, or even wholly, obliterated in the process of grinding the columella into shape as to make it necessary to enlarge or even recut the groove in order to make a place for the much-loved asphaltum." Another form, made from another shell, is described, the whorls of which are "loose and open, so that a natural tube exists throughout the length of the spire; at the same time the spiral groove in the central portion is very narrow; consequently it has to be artificially enlarged for the insertion of the asphaltum, which thus winds spirally about the shell. As the natural orifice at the large end of the shell seems to have been too large for properly adjusting and confining the ornament as desired, this difficulty was overcome by inserting a small shell of *Dentalium*, or by making a little plug of shell, which is carefully fitted and bored."[1]

The national collection contains upward of fifty of these pins, which come from ancient graves at Santa Barbara and Dos Pueblos, Cal., and from the islands of Santa Cruz and San Miguel. These vary in length from one to five inches, the well-finished specimens seldom reaching one half an inch in diameter. At the upper end they round off somewhat abruptly to an obtuse point, but taper to a sharp point at the lower end, something like a cigar. Two fine examples are shown in Figs. 1 and 2, Plate XXXI. All show the spiral groove, and nearly all have portions of the asphaltum remaining. The columellæ from which they are made may be to some extent naturally perforated, but are certainly not sufficiently so to permit the ready passage of a cord. The points are seldom sharp, and are often broken off. A bit of *Dentalium* inserted into the perforation and set with asphaltum helps to enforce the point and to guard against further breakage. The larger specimens are seldom perforated transversely at either end, while the smaller ones are almost always perforated at the larger end, which is slightly flattened. A good example is shown in Fig. 5, Plate XXXI.

A peculiar bulb-pointed specimen is illustrated in Fig. 6, Plate XXXI. The bulb is made from the upper end of the columella. There are six of these pins in the collection.

The consideration of these pins leads naturally to the presentation of other classes of objects manufactured from the columellæ of marine univalves among which beads are the most numerous and important.

[1] Putnam, in Surveys West of the 100th Meridian, Vol. VII, p. 259.

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1. Shell pin from San Miguel Island.
2. Shell pin from Dos Pueblos, Cal.
3. An untrimmed columela.
4. Bone pin from Oregon.
5. Shell pin from San Miguel Island.
6. Shell pin from San Miguel Island.

PINS—PACIFIC COAST FORMS.

(¼)

BEADS.

I shall not attempt within the limits of this paper to give more than an outline of this important division of my subject.

The use of beads seems to have been almost universal with peoples of all times and of all grades of culture, and the custom of wearing them is a relic of barbarism that promises to be carried a long way into the future. All suitable natural objects have been brought into requisition—animal, vegetable, and mineral. Shells from the sea, precious stones from the mountains, and fruits from the forest have been utilized; and claws of birds, teeth of animals, and even the nails of the human hand have been worked into ornaments to gratify the barbaric vanity of the "untutored savage." The flinty substance of the shells of mollusks has been a favorite material at all times and with all peoples. Especially is this true of the shell-loving natives of North America, among whom shell beads have been in use far back into the prehistoric ages, and who to-day, from Oregon to Florida, burden themselves to discomfort with multiple strings of their favorite ornament; and this, too, without reference to their value as money or their service as charms. On the necks of brawny and unkempt savages I have seen necklaces made of the highly glazed *Oliva*, or of the iridescent nacre of the pearly *Haliotis*, that would not shame a regal wardrobe, and have marveled at the untaught appreciation of beauty displayed.

Beads made of shell may have three divisions based upon derivation, and three based upon function.

First, they consist of all smaller varieties of natural shells, pierced for suspension, or only slightly altered, to add to beauty or convenience; second, they are made of the shells of bivalves and the outer walls of univalves; or, third, of the columellæ of the larger univalves cut to the desired sizes, and shaped and polished to suit the savage taste.

As to function, they may be classed as personal ornaments, as money, and as material for mnemonic records.

PERFORATED SHELLS.

Under this head I shall examine briefly the manner of piercing or altering the smaller varieties of shells preparatory to stringing. The multitudes of perforated shells exhumed from the graves of our ancient tribes afford a fruitful field of study, and our large collections of more recent specimens serve to illustrate the manner in which they were employed.

In Plate XXXII illustrations are given showing the various methods of manipulation and perforation. In North America the *Maginella*, the *Oliva*, and the *Cyprea* seem to lead in importance.

Fig. 1 represents an *Oliva*, the apex of which has been broken away and the rough edge ground down, producing a passage for a thread, which may be introduced through the natural aperture below. This is

a common method of perforation in many widely separated districts, and with a considerable variety of shells. The specimen figured is from a mound in Cocke County, Tenn. It is an *Oliva literata* from the Atlantic coast.

Fig. 2 shows a very usual method of treating small univalves. The most prominent part of the lower whorl is ground down until the wall is quite thin, and a small round hole is then drilled through it. The specimen illustrated is a large *Olivella biplicata*, obtained from the island of Santa Rosa, Cal.

Figs. 3 and 4 illustrate specimens from Mexico. Some thin-bladed implement, probably of stone, has been used to saw a slit or notch in the first convolution of the shell near the inner lip. Fig. 3 has one of these perforations, and Fig. 4 has two. The shell is the *Oliva literata*, from the Atlantic coast.

Fig. 5 is simply one-half of an *Olivella biplicata* with the interior parts extracted. It is made by cutting the shell longitudinally and drilling a central perforation. The specimen figured is from San Miguel Island, Cal.

Fig. 6 illustrates the manner of breaking out a disk preparatory to making a bead. This disk, when perforated, is frequently used by the Indians of the Pacific coast without additional finish.

Fig. 7 shows two examples of beads made from small specimens of the *Olivella biplicata;* both extremities are ground off, leaving a rather clumsy cylinder. The originals are from graves on the island of Santa Rosa. Such beads are frequently worn at the present time.

One of the specimens shown in Fig. 8 is from a grave in Monroe County, New York, and the other is from a mound in Perry County, Ohio. The shell is the *Marginella conoidalis*, which has a wide distribution in the ancient burial-places of the Atlantic slope. In making the perforation the shoulder is often ground so deeply as to expose the entire length of the interior spiral.

Fig. 9 represents a perforated *Cerrithidea sacrata*, from Santa Rosa Island, Cal. The method of perforating employed is a usual one with small shells of this form. Similar specimens come from many parts of the United States. Beads of this and the preceding variety are said to have constituted the original wampum of the Atlantic seaboard.

Fig. 10 illustrates a rude bead made from the spire of a univalve, probably a small specimen of *Busycon perversum.* Most of the body of the shell has been removed and a perforation made near the border. Three of these specimens were found in a burial mound at Murphysboro, Ill.

Fig. 11 illustrates a perforated *Cyprea* from the Pacific coast. This is a recent specimen which illustrates an ancient as well as a modern method of perforation.

Fig. 12 shows a rather peculiar method of treating *Cyprea* shells by

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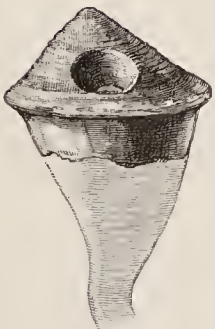
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PERFORATED SHELL BEADS.

($\frac{1}{1}$)

the tribes of the Pacific coast and the Pacific islands. The prominent part of the back is cut or ground away, and the columella is partially or wholly removed, a passage the full size of the natural aperture being thus secured. This is also an ancient as well as a modern method of treatment.

Small bivalve shells are prepared for stringing by drilling one or more holes in the center or near the margin, according to the manner in which they are to be strung. Such beads have been in almost universal use by primitive peoples, both ancient and modern.

Shells with natural perforations, such as the *Fissurellas* and *Dentalia*, are extensively employed by the west coast peoples, and foreign varieties of the latter have been largely imported by Europeans, and from very early times have been used by the tribes of all sections. The natural perforation of the *Fissurella* is often artificially enlarged, and additional perforations are made near the margin. Examples may be seen in Plate XLIX.

I shall include under the head of beads all small objects having a central or nearly central perforation, made for the purpose of stringing them in numbers. In shape, they range from straw-like cylinders, three, four, and even five inches long, with longitudinal perforations, to thin, button-like disks, two or more inches in diameter. In general the cylinders are made from the columellæ of univalves, and the disks from the outer walls of the same, or from the shells of bivalves. Of course, there are forms that fall under no classification, such as disks with perforations parallel with the faces, or cylindrical forms with transverse perforations, while many small, pendant-like objects, of varied shapes, are strung with the beads, and might be classed with them; but these are exceptions, and can be described along with the classified objects most nearly resembling them.

The grinding down and the perforating of natural shells is easily accomplished, so that any savage could afford to decorate his person with this jewelry in profusion. But the class of beads illustrated in Plates XXXIII, XXXIV, and XXXV could not have been made without the expenditure of much time and labor, and doubtless owe their existence, in a measure, to mercenary motives. As they were made from the walls or columellæ of massive shells, they must have been broken or cut out, ground smooth about the edges, and perforated; this, too, with most primitive tools.

DISCOIDAL BEADS.

In shape discoidal beads range from the concavo-convex sections of the curved walls of the shell to totally artificial outlines, in such forms as doubly-convex disks, cylinders, and spheroids. In size the disks vary from very minute forms, one-tenth of an inch in diameter and one-thirtieth of an inch in thickness, to two inches in diameter and nearly one-half an inch in thickness. The thickness of the finished beads is

governed in a great measure by the thickness of the shell from which they are manufactured.

The *Venus mercenaria* of the Atlantic coast and the heavier *Unios* of the Mississippi Valley give a general thickness of from one-eighth to three-eighths of an inch, while others, such as the heavy clams of the Pacific, are very much thicker. The walls of univalves, especially near the base, are often extremely heavy, while the smaller varieties of shells furnish specimens of wafer-like thinness.

In Plate XXXIII a series of beads of this class is given, beginning with the smaller disks and ending with those of large, though not the largest, size.

In fig. 1 I present two views of a minute disk, obtained, with many others of similar shape and size, from a mound on Lick Creek, Tenn. The perforations in these specimens, as well as in most of those that follow, are bi-conical, and sufficiently irregular in form to indicate that they are hand-made. Beads of this general appearance have been found in a multitude of graves and mounds, distributed over a large part of North as well as of South America. A vast majority of these beads are doubtless of aboriginal make, as they are found in the oldest mounds.

Fig. 2 represents a minute form from Santa Cruz Island, Cal. The peripheral surface is ornamentedwith a net-work of incised lines.

Fig. 3 illustrates a small cylindrical bead, with large perforation, from a mound near Prairie du Chien, Wis. It was found, with a number of others, near the neck of the skeleton of a child.

Fig. 4 represents a small spheroidal bead from the great mound near Sevierville, Tenn.; it is neatly made and well preserved.

Figs. 5 and 6 illustrate specimens of roughly finished concavo-convex disks, much used by both ancient and modern tribes of California, Arizona, and New Mexico.

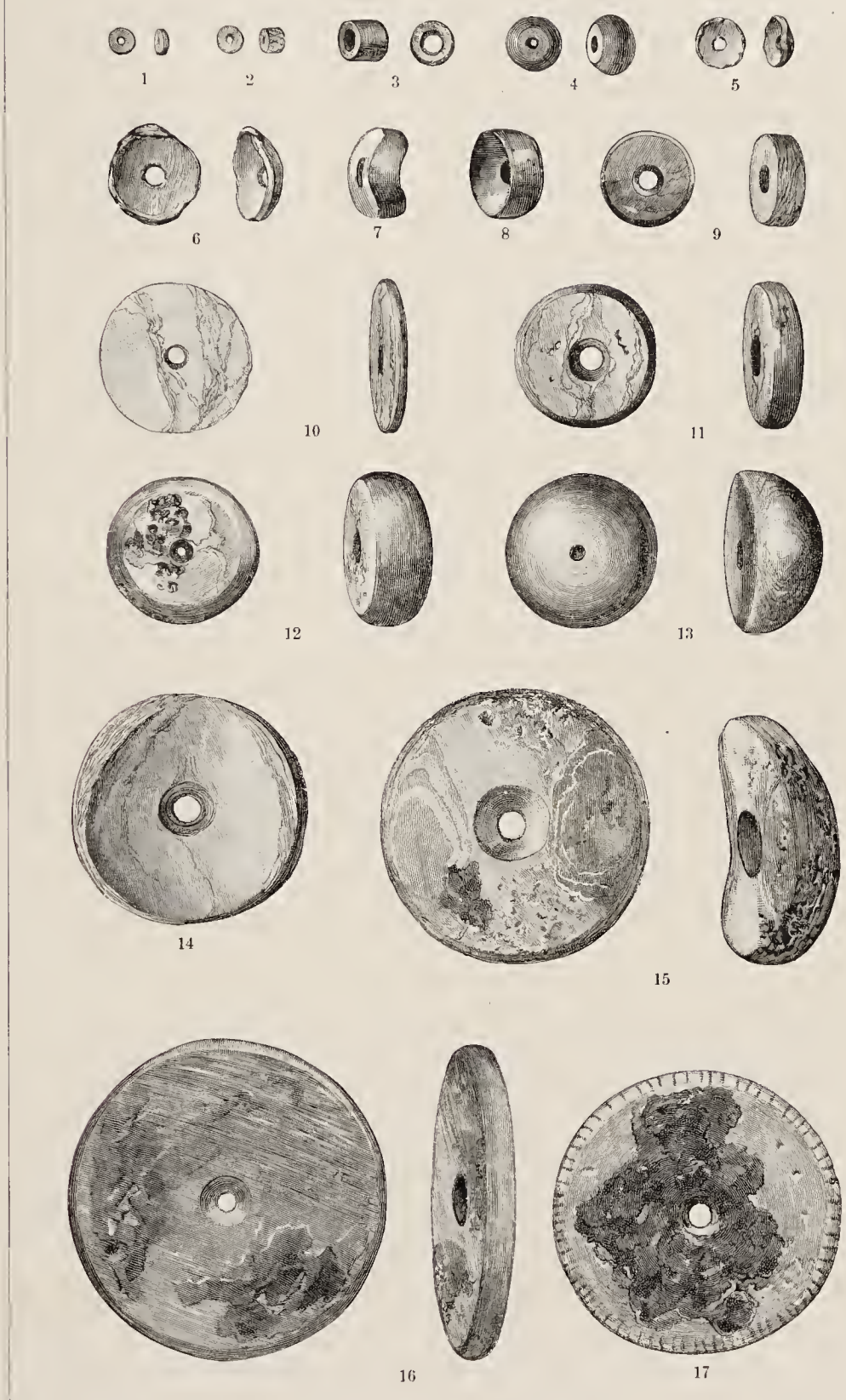
I essayed at one time to purchase a long necklace of these homely ornaments from a Navajo Indian in Arizona, but soon discovered that it was beyond my reach, as my best mule was hardly considered a fair exchange for it. These beads are made from the *Oliva* chiefly, but to some extent from small bivalves.

This bead is not common in the mounds of the Mississippi Valley, but is used by many modern savages. It seems to be the form called, by the Indians of Virginia, "roenoke," which, according to Beverly, is made of the cockle-shell, broken into small bits, with rough edges, and drilled through in the same manner as beads.

Fig. 7 represents a smoothly cut bead of medium size, said to have been obtained from a grave at Lynn, Mass. It has been cut from the curved wall of some large univalve, and is very similar to modern specimens in use over a greater part of the United States.

Fig. 8 belongs to a necklace brought from the northwest coast, and is very much like the specimen shown in Fig. 7.

Fig. 9 is a well-made specimen from Sevierville, Tenn. The sides are



DISCOIDAL BEADS.

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ground perfectly flat and the edges are well rounded. The shell is very compact, and well preserved, and bears a close resemblance to bone or ivory.

Fig. 10 represents a thin, fragile disk, from a mound in Southern Illinois. It is made of a *Unio*, and separates into thin sheets or flakes, like mica.

Figs. 11 and 12 illustrate two compact, nearly symmetrical specimens from a mound at Paint Rock Ferry, Tenn.

Fig. 13 is from the same locality, and is hemispherical in shape.

Fig. 14 represents a button-like disk, with large conical perforation, from a mound at Paint Rock Ferry, Tenn. It has probably been made from the wall of a large marine univalve.

The fine specimen shown in Fig. 15 comes from a mound in Cocke County, Tenn., and is unusually well preserved. It is very compact, having the appearance of ivory, and has probably been made from the basal portion of a large univalve. The perforation is extremely large, and is conical, having been bored entirely from one side.

Figs. 16 and 17 represent two fine specimens from California. They are nearly symmetrical, the faces being flat or slightly convex. The smaller one has been coated with some dark substance—the result, probably, of decay—which has broken away in places, exposing the chalky shell. The edges are ornamented with shallow lines or notches. Such disks, when used as ornaments, probably formed the central piece of a necklace, or were fixed singly to the hair, ears, or costume. As long as these larger specimens retained the color and iridescence of the original shell, they were extremely handsome ornaments, but in their present chalky and discolored state they are not prepossessing objects.

This plate will serve as a sort of key for reference in the study of beads of this class, as the specimens are typical.

MASSIVE BEADS.

Beads made from the columellæ of univalves have generally a number of distinguishing characteristics. They are large and massive, and rarely symmetrical in outline, being sections of roughly dressed columns. They are somewhat cylindrical, and often retain the spiral groove as well as other portions of the natural surface. In cases where the form is entirely artificial they may be distinguished by the sinuous character of the foliation. The perforation is nearly always with the axis of the bead, and is in most cases bi-conical. In Plate XXIX a series of cuts is given which illustrates the various methods of perforation and shows very distinctly the differences between the rude work of savages and the mechanically perfect work of modern manufacturers. Beads of this class are more decidedly aboriginal in character than those of any other group, and are without doubt of very ancient origin. They are widely distributed, and have been found in graves and mounds covering an area

outlined by Massachusetts, Canada West, Minnesota, Missouri, and the Gulf and Atlantic coasts.

Figs. 1, 6, 7, 11, and 14 of Plate XXXIV represent typical specimens of this class. In every case they are considerably altered by decay, rarely retaining any of the original polish. All come from ancient burial mounds, some of the interments of which probably antedate, while others post-date, the coming of the whites.

The bead shown in Fig. 1 is made from the columella of a *Busycon perversum*. It is a rude, tapering cylinder, with rounded ends and deep spiral groove. The perforation is bi-conical and somewhat irregular. This, with many similar beads, made of both dextral and sinistral shells, was associated with human remains in the great mound at Sevierville, Tenn.

The bead illustrated in Fig. 6 has been made from the column of some dextral whorled shell. It was obtained from a mound on Lick Creek, East Tenn. It is a typical specimen of average size, and illustrates very well the large collection of this class of relics made by Dr. Troost.

Fig. 7 was obtained from a mound at Franklin, Tenn. It is cut from the columella of a *Busycon perversum*, and is of the usual form, being a heavy, short cylinder, rounded at the ends until it is somewhat globular. The perforation is very large, and has been made almost entirely from one end. The surface is much weathered, the firmer *laminæ* being distinctly relieved. Other specimens from the same locality are much smaller.

Fig. 11 is from a grave in an ancient cemetery at Swanton, Vt., and is similar to the preceding, having been cut, however, if correctly represented, from a dextral whorled shell. The cut is copied from a paper by G. H. Perkins.[1]

Fig. 14 illustrates a very large specimen of these beads from the Lick Creek Mound, East Tenn. The surface is encrusted, stained, and decayed. It has been made from the broad beak of a *Strombus* or dextral whorled *Busycon*. The perforation is symmetrical and bi-conical. Specimens upwards of two inches in length and one and one-fourth in width come from the same place. The larger perforations are three-eighths of an inch in diameter at the ends and quite small in the middle.

Fig. 12 represents a large bead of symmetrical outline, made from the columella of a *Busycon perversum*. The shape is artificial, with the exception of a small portion of the spiral canal. The surface retains much of the original polish, but exfoliation has commenced on one side.

The perforation is about three-sixteenths of an inch in diameter at the ends and one-sixteenth in the middle. There is a slight offset where the perforations meet. It is from a burial mound at Harrisburg, Ark.

The bead shown in Fig. 9 is one of a large number obtained from a

[1] Perkins, on An Ancient Burial-Ground in Swanton, Vt., Proceedings of the American Association, 1873.

MASSIVE BEADS AND PEARLS.

($\frac{1}{1}$)

mound at East St. Louis, Ills. It is a symmetrical, well-polished cylinder. The small portion of the spiral groove which remains indicates that it is derived from a *Busycon perversum*. The perforation is neatly made and doubly conical in shape. The symmetry, finish, and fine condition of this bead lead to the suspicion that it may be of recent manufacture. Its form is by no means a common one among ancient mound relics.

The bead represented in Fig. 10 is described and illustrated by Squier and Davis.[1] This, with many similar specimens, was taken from a mound in the Ohio Valley. It is made from the columella of some marine univalve, and is well wrought and symmetrical.

Fig. 5 is a flattish, highly polished bead from Monroe County, New York. The material, which resembles ivory, may have been obtained from the tusk of some animal. It is slightly concave on one side and convex on the other. The perforation is neatly made and of uniform diameter throughout.

In Fig. 4 I present a bead of unusual shape; it is made from the basal portion of some heavy univalve. The axis and perforation are at right angles to the plane of lamination. The middle portion of the bead has been excavated, producing a form resembling a labret or lip-block, in common use by many tribes. It is from a mound on French Broad River, Tenn. We have a bead of similar shape, but which has a lateral perforation, from a mound at Nashville, Tenn.

Fig. 2 illustrates a spheroidal bead obtained from an ancient grave on Santa Rosa Island, Cal. The form is unusually symmetrical and the perforation neatly made, being small, doubly conical, and slightly countersunk at one end. The surface is smooth and retains a little of the original purplish hue of the shell, probably a *Hennites giganteus*. Others of the same shape from this locality exhibit like characteristics. A few similar specimens come from San Miguel Island.

Another large specimen from this locality is shown in Fig. 8. It is somewhat flat, and is quite wide in the middle portion, tapering rapidly towards the ends. The perforation is small and regular. The lines of foliation are distinctly marked, but are not sufficiently characteristic to indicate the part of the shell from which the bead is derived.

Pearls.—Two of the most remarkable beads in the national collection are illustrated in Figs. 3 and 13. The latter is an enormous pearl, probably derived from the *Haliotis Californianus*. It is somewhat pear-shaped, the base being rounded and the apex a little bent. The transverse section is subtriangular. Having been buried for an unknown period in the soil or sand, it has suffered greatly from decay, and has probably lost considerably by exfoliation. The thin, chalky lamellæ come away readily in concentric scales, exposing the iridescent *nacre* beneath. The perforation is about one-sixteenth of an inch in diameter, and seems to pass through a natural cavity in the interior of the pearl. The smaller specimen given in Fig. 3 is in many respects, similar to the

[1] Squier and Davis: Ancient Monuments of the Mississippi Valley, p. 232.

large one. Another, of about the same size as Fig. 3 bears quite a marked resemblance to a lima bean, and is pierced laterally, giving a button like appearance.

These specimens were obtained from graves on San Miguel Island, by Stephen Bowers.

TUBULAR BEADS.

In Plate XXXV I have arranged a number of cylindrical beads, together with a few others of unclassified form.

Figs. 1 and 2 illustrate the most common form of the ancient wampum, the white example being made from the columella of a small univalve, and the dark one from the purple portion of a *Venus mercenaria*. The specimens represented belong to the celebrated "Penn belt," preserved in the rooms of the Historical Society of Pennsylvania.

It is not known positively that beads of this particular shape were employed in pre-Columbian times; but it is certainly one of the earliest historical forms, and one which has been manufactured extensively by the Indians as well as by the whites. They may be found both in very old and in very recent graves, in widely separated parts of the United States and British America, and have always formed an important part of the stock of the Indian trader.

Figs. 3 and 4 represent a very large class of Pacific coast forms. These are from the island of San Miguel. They are simple white cylinders, with somewhat irregular bi-conical perforations. Many examples may be found which taper slightly toward the ends. They are coated with a rusty-looking deposit, which breaks away easily, exposing the chalky substance of the shell. They range from one-half to three inches in length, and from one-eighth to three-eighths in diameter. They are probably made from the thick valves of the *Pachydesma crassatelloides* or the *Amiantis callosa*. They were probably used as beads for the neck and as pendant ornaments for the ears. The longer specimens may have been worn in the nose. It is also said that beads of this class were used as money.

Fig. 5 illustrates a very long, tubular bead found at Piscataway, Md. It has been made from the columella of some large univalve. It is four and a half inches long and one-fourth of an inch in diameter. The surface is smooth, but a little uneven, and the ends taper slightly. The perforation which has apparently been made from both ends, as there is an offset near the middle, is quite regular, though slightly enlarged near the ends.

A large number of beads of the class illustrated in Fig. 6, Plate XXXV, were obtained from the ancient graves of San Miguel Island, Cal. They have been made from one of the large bivalve shells of the Pacific coast, probably the *Pachydesma crassatelloides*. The curvature of the bead is the result of the natural curve of the valve from which it is fashioned. The larger specimens are nearly five inches in length. In the middle portion they are three-eighths of an inch in diameter. They taper gradually towards the ends to the size of the perforation,

1, 2. Beads from the Penn Belt.
3, 4. Pacific coast forms.
5. Bead from Maryland.
6. A Pacific coast form.
7. A Pai-Ute nose ornament (bone).
8. Bead made from a Haliotis.
9, 10, 11. Beads made from hinge of Hennites.
12. Bead made from a Dentalium.
13. Bead from mound, Tenn.

BEADS.

which averages about one-sixteenth of an inch. The curvature of the bead is so great that there has been much difficulty in making the perforations from opposite ends meet, and none of the larger specimens will permit the passage of a wire, although the perforations lap considerably and water passes through quite freely. It will be observed that the surface of these objects is coated with a dark, rough film, which, when broken away, exposes the natural shell. Such beads may have been used as nose ornaments, but more probably formed parts of some composite ornament for the neck or ear.

Fig. 7 represents a bone nose ornament obtained from the Pai-Ute Indians by Professor Powell. Its shape is not unlike that of the curved bead just described.

The large rude bead given in Fig. 8 is made from the thick lip or rim of the *Haliotis Californianus*. This, with a number of similar specimens, was obtained from an ancient grave at Dos Pueblos, Cal. The perforations are all large and symmetrical. In one case the hole has been reduced at the ends by inserting small bits of shell, through which minute passages have been made.

In Figs. 9 and 10 I give two illustrations of a bead of rather remarkable form. A large number of similar specimens have been brought from Dos Pueblos, La Patera, and the islands of San Miguel and Santa Cruz. They are made from the hinge of the *Hennites giganteus*, a large bivalve, having a delicate purplish tinge. The shape results from the form of the hinge; the curve is the natural curve of the shell; and the notch near the middle of the convex side is the natural pit, often somewhat altered by art to add to the appearance or to assist in completing the perforation. The holes are generally very small, and have been made with much difficulty, owing to the curvature of the bead. Where by accident the perforation has become enlarged at the end, it has been bushed by setting in a small piece of shell. The specimen figured is perforated near the end for suspension, no longitudinal perforation having been attempted.

Fig. 11 shows one of these beads in an unfinished state, the portion of the hinge used being roughly broken out and slightly rounded. We have in the national collection specimens of this class in all stages of manufacture. Professor Haldeman has described and illustrated a number of similar beads. He describes the rounded notch near the middle as artificial, and considers it a device to help out the perforation or facilitate the stringing. Professor Putnam, in the same work,[1] states that the "notches were subsequently filled with asphaltum even with the surface of the shell."

The curved bead illustrated in Fig. 12 is made from a *Dentalium indianorum* (?) by removing the conical point. These shells, either entire or in sections, are much used by the Indians of the northwest, both as ornaments and as a medium of exchange.

[1] Putnam, in Surveys West of the 100th Meridian, Vol. VII, p. 266.

RUNTEES.

In Plate XXXVI I present a number of illustrations of a class of relics which have occasionally been mentioned in literature, and which are represented to some extent in our collections. As these objects resemble beads rather more closely than pendants, I shall refer to them in this place, although Mr. Schoolcraft considers them badges of honor or rank, and treats them as gorgets. He describes them as consisting of a "circular piece of flat shell, from one and a half to two inches in diameter, quartered with double lines, having the devices of dots between them. This kind was doubly perforated in the plane of the circle."[1]

In "Notes on the Iroquois," by the same author, we have a much fuller description. He says that "this article is generally found in the form of an exact circle, rarely a little ovate. It has been ground down and repolished, apparently, from the conch. Its diameter varies from three-fourths of an inch to two inches; thickness, two-tenths in the center, thinning out a little towards the edges. It is doubly perforated. It is figured on the face and its reverse, with two parallel latitudinal and two longitudinal lines crossing in its center, and dividing the area into four equal parts. Its circumference is marked with an inner circle, corresponding in width to the cardinal parallels. Each division of the circle thus quartered has five circles, with a central dot. The latitudinal and longitudinal bands or fillets have each four similar circles and dots, and one in its center, making thirty-seven. The number of these circles varies, however, on various specimens. In the one figured there are fifty-two."[2]

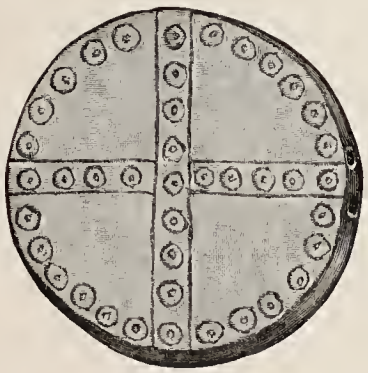
Figs. 1 and 2 are copied from Plate 25 of Schoolcraft. The smaller was obtained from an ancient grave at Upper Sandusky, Ohio, and the larger from an Indian cemetery at Onondaga, N. Y. Others have been found at Jamesville, Lafayette, and Manlius, in the latter State. The Indians, according to Mr. Schoolcraft, have no traditions respecting this class of objects, and we are quite in the dark as to their significance or the manner in which they were used.

Mr. W. M. Beauchamp, of Baldwinsville, N. Y., has very kindly sent me sketches of two of these objects. The originals were obtained from an ancient village site at Pompey, N. Y. One is almost a duplicate of the smaller specimen copied from Schoolcraft, but the other, which is illustrated in Fig. 4, Plate XXXVI, presents some novel features. The central portion of the face is occupied by a rosette-like design, which consists of six sharply oval figures that radiate from the center like the spokes of a wheel. These rays are ornamented with a series of oblique lines, arranged in couplets. The margin is encircled by a narrow band, similarly figured. Mr. Beauchamp expresses the opinion that these specimens are of European origin.

The specimen shown in Fig. 3 belongs to a necklace now in the

[1] Schoolcraft: History of the Indian Tribes, Vol. III, p. 79, Plate 25.

[2] Schoolcraft: Notes on the Iroquois, p. 233.



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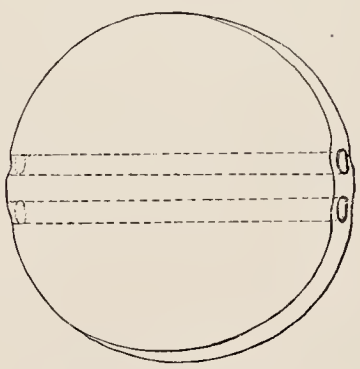

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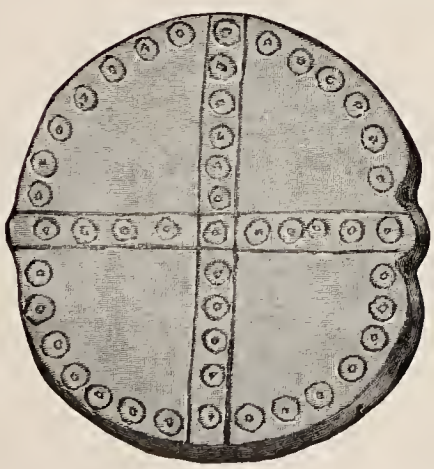

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1. New York.
2. New York.
3. Arizona.
4. New York.
5, 6. Sections.
7. Manner of wearing.

RUNTEES.

national collection. This necklace was obtained from the Indians of New Mexico by Lieutenant Whipple, and consists of three of these shell ornaments, together with about fifty small porcelain beads. The shell beads are strung at regular intervals. The specimen illustrated is ornamented with a design in minute conical pits, arranged precisely as are the circlets in the crosses and encircling bands of the New York and Ohio specimens. The edges and surfaces are much worn by use. The substance of the shell is well preserved, and has an ivory-like appearance although in the specimen shown in the cut the lamination of the shell is distinctly seen. The perforations in these three specimens are quite symmetrical, and suggest the use of machinery. The method of perforation is identical in all these specimens, and will be readily understood by reference to the two sections given in Figs. 5 and 6. All of these specimens are nearly circular; but the regularity of the outline is in some cases marred by shallow notches produced by wear at the perforations. This wear has been accelerated by the abrasion of the small beads with which the disks have probably been strung.

It will be noticed that there is quite a close resemblance between these objects and the "runtees" of the early writers. Beverly gives an illustration of an Indian boy who is described as wearing a necklace of these "runtees," which "are made of the Conch Shell, as the Peak is, only the Shape is flat and like a Cheese, and drill'd Edge-ways."[1] A portion of this illustration is copied in Fig. 5, Plate XXXVI. It will be seen by reference to this cut that the manner of stringing corresponds with the method in which the objects under consideration would have to be strung.

It is probable that the signification of the designs engraved upon these ornaments will remain forever a matter of conjecture. It cannot be affirmed that the cross, which occurs on the faces of most of the specimens, has any particular significance, although it may represent the points of the compass. That it may have some emblematic meaning is, however, not impossible. I have counted the number of circlets on all of the specimens with which I am acquainted. The result is shown in the following table:

	In the cross.		In the circle, exclusive of cross.	Total.
	Longitudinal arm.	Transverse arm.		
No. 1 (Fig. 1)	10	9	23	41
No. 2 (Fig. 3)	10	12	27	48
No. 3 (Fig. 2)	11	9	23	42
No. 4[1]	9	9	20	37
No. 5[1]	12	11	29	51
No. 6[2]	9	9	20	37

[1] Schoolcraft: Notes on Iroquois, p. 233. [2] From sketch by Mr. Beauchamp.

The central circlet having been counted with each arm of the cross, the total number of circlets in each specimen will be one less than the sum of the three columns.

[1] Beverly: History of Virginia, p. 145, Plate VI.

These circlets may be numerals. The design may be significant of some rank, the badge of a secret order, or the totem of a clan. The general arrangement of the figures upon the face of these disks suggests an incipient calendar.

These beads are doubtless American in origin, as nothing of a similar form, so far as I can learn, occurs in European countries. The fact that they are found in widely separated localities indicates that they were probably used in trade since the advent of the whites. This is possibly some form of bead held in high esteem by tribes of the Atlantic coast when first encountered by the whites who have taken up its manufacture for purposes of trade.

BEADS AS ORNAMENTS.

I have already spoken casually of the use of beads for personal ornament, but it will probably be better to enlarge a little upon the subject at this point.

Beads are generally found in the graves of ancient peoples in a loose or disconnected state, the strings on which they were secured having long since decayed. We cannot, therefore, with certainty, restore the ancient necklaces and other composite ornaments; but we can form some idea of their character by a study of the objects of which they were made and the positions held by these objects at the period of exhumation. Much can also be learned by a study of the ornaments of modern peoples in similar stages of culture.

As a rule, the combinations in the pendant ornaments of the ancient American seem to have been quite simple. Being without glass, and practically without metals, they had few of the resources of the modern savage. Their tastes were simple and congruous, not having been disturbed by the debasing influence of foreign innovation, which is the cause of so much that is tawdry and incongruous in the art of modern barbarians.

A curious example of a modern necklace is given by Professor Haldeman,[1] who had in his possession an Abyssinian necklace "composed of European beads, cowries (*Cyprea* shell), a triangular plate of glass, two small copper coins, small spheric brass buttons, cornelian, date-seeds, numerous cloves pierced through the sides, a fragment of wood, a bit of cane, and an Arab phylactery."

Something can be learned of the practices of the ancient Americans in the use of beads and pendant ornaments generally, by a study of the remains of their paintings and sculptures—such, for instance, as may be found in the Goldsborough manuscripts or the superb lithographs of Waldeck, examples of which are given in Plate XLV.

In a number of cases necklaces of the mound-builders have been found upon the necks of skeletons, just as they were placed at the time of burial.

[1] Haldeman, in Surveys West of the 100th Meridian, Vol. VII, p. 263.

Captain Atwater in describing the contents of a mound at Marietta, Ohio, makes the statement that on the breast of a skeleton "lay a stone ornament, with two perforations, one near each end, through which passed a string, by means of which it was suspended around the wearer's neck. On the string, which was made of sinew, and very much injured by time, were placed a great many beads made of ivory or bone."[1]

A similar necklace is described by Mr. Matson, in the Ohio Centennial Report, p. 127. It was found on the skeleton of a little girl, and was so made as to be larger in the center of the neck in front, tapering almost to a point at the middle of the back. On page 129 of the same volume much more varied uses of bead ornaments are suggested. Mr. Matson describes four skeletons, on each of which shell beads were found. In three cases they had been placed about the neck only; in the fourth, nearly thirty yards of beads had been used. There were four strands about the neck, crossing over on the breast and back and passing down between the legs. Strings passed down the legs to the feet, and were also found along the arms and around the wrists.

The arrangement of the various parts of a necklace or string of pendants is found to be much alike the world over, consisting of a strand of beads, small toward the ends and increasing in size toward the middle, where a central bead or pendant of peculiar form or unusual size is placed.

The practices of modern barbarians in the employment of beads as ornaments are extremely varied. They are employed in dressing the hair, in head-dresses and plumes, and pendants to these; as pendants to the hair, ears, nose, and lips; as necklaces and bracelets; as belts for the waist and sashes to be thrown across the shoulders; and as anklets and pendent ornaments to all parts of the costume.

Father Rasles, writing of the Abnaki Indians of Canada in 1723, says: "If you wish to see him in all his finery, you will find he has no other ornaments but beads; these are a kind of shell or stone, which they form into the shape of little grains, some white and others black, which they string together in such a way as to represent different showy figures with great exactness. It is with these beads that our Indians bind up and plait their hair on their ears and behind; they make of them pendants for the ears, collars, garters, large sashes of five or six inches in breadth, and on these kinds of ornaments they pride themselves much more than a European would on all his gold and jewelry."[2]

It is related of the New England Indians that more than a hundred years ago, they "hung strings of money about their necks and wrists, as also upon the necks and wrists of their wives and children. They also curiously make girdles, of one, two, three, four, and five inches thickness, and more, of this money; which, sometimes, to the value of ten pounds or more, they wear about their middle, and as a

[1] Atwater: Western Antiquities, p. 86. In the early days of mound exploration shell was usually mistaken for bone or ivory.

[2] Kip: Jesuit Missions, p. 25.

scarf about their shoulders and breasts. Yea, the princes make rich caps and aprons, or small breeches of these beads, thus curiously strung into many forms and figures; their black and white finely mixed together."[1]

It is further recorded that the New England Indians "wore ear-rings and nose-jewels; bracelets on their arms and legs, rings on their fingers, necklaces made of highly polished shells found in their rivers and on their coasts. The females tied up their hair behind, worked bands round their heads and ornamented them with shells and feathers, and wore strings of beads round several parts of their bodies. Round their moccasins they had shells and turkey spurs, to tinkle like little bells as they walked."[2]

The Indian women of the New Netherlands also gave great attention to personal decoration. One writer states that they ornamented the lower border of their skirts "with great art, and nestle the same with strips, which are tastefully decorated with wampum. The wampum with which one of these skirts is ornamented is frequently worth from one to three hundred guilders. * * * Their head-dress forms a handsome and lively appearance. Around their necks they wear various ornaments, which are also decorated with wampum. Those they esteem as highly as our ladies do their pearl necklaces. They also wear bead hand-bands, or bracelets, curiously wrought, and interwoven with wampum. Their breasts appear about half covered with an elegantly wrought dress. They wear beautiful girdles, ornamented with their favorite wampum, and costly ornaments in their ears."[3]

Smith states, in writing of Powhatan, that he found him "reclining proudly upon a Bedstead a foote high, upon tenne or twelve Mattes, richly hung with manie Chaynes of great Pearles, about his necke, and covered with a great Couvering of Rahaughcums,"[4] and the young women who surrounded him wore "a great Chaine of white Beades over their shoulders."[5]

The following is from Wood, whose quaint and graphic descriptions of the New England Indians are always interesting: "But a Sagamore with a Humberd in his eare for a pendant, a black hawk on his *occiput* for his plume, Mowhackees for his gold chaine, a good store of Wampompeage begirting his loynes, his bow in his hand, his quiver at his back, with six naked *Indian* spatterlashes at his heels for his guard, thinkes himselfe little inferior to the great *Cham;* he will not stick to say he is all one with King *Charles.* Hee thinkes hee can blow down Castles with his breath and conquer kingdomes with his conceit."[6]

Du Pratz, in speaking of the Louisiana Indians, says: "The women's ear-rings are made of the center part of a large shell called bingo, which

[1] Collections of the Massachusetts Historical Society, 1794, Vol. III, pp. 231, 232.
[2] Worsley, View the American Indians, p. 65.
[3] Collections of the New York Historical Society, 1841; vol. I, 2nd Series, p. 194.
[4] Thought to be raccoon skins.
[5] Smith: True Relation of Virginia, pp. 33, 34.
[6] Wood: New England Prospect, p. 74.

is about the thickness of one's little finger, and there is a hole in the ear about that size for holding it."[1]

Lewis and Clark found the Shoshone Indians of the Upper Missouri using shells of the pearl oyster to decorate the collars of their fur tippets. The children wore beads around their necks; grown persons suspended them in little bunches from the ears, and the collars of the men were formed either of sea-shells from the southwest or from twisted grass with porcupine quills.[2]

Among the Carrier Indians of the Northwest both sexes perforate their noses, and from them the men often suspend an ornament consisting of a piece of an oyster shell or a small piece of brass or copper. The women, particularly those who are young, run a wooden pin through their noses, upon each end of which they fix a kind of shell bead, which is about an inch and a half long, and nearly the size of the stem of a common clay pipe. These beads they obtain from their neighbors, the At-e-nâs, who purchase them from another tribe that is said to take them from the sea-shore, where they are reported to be found in plenty.

It is also stated of the same Indians that "the young women and girls wear a parcel of European beads, strung together and tied to a lock of hair directly behind each ear. The men have a sort of collar of the shell beads already mentioned, which they wind about their heads or throw around their necks."[3]

The absurd extreme to which this passion for ornament is carried is well illustrated by an example given by Swan, who, speaking of the tribes north of the Columbia River, says that "some of these girls I have seen with the whole rim of their ears bored full of holes, into each of which would be inserted a string of these shells that reached to the floor, and the whole weighing so heavy that, to save their ears from being pulled off, they were obliged to wear a band across the top of the head."[4]

When, however, beads are found in the graves in quantity, by thousands or tens of thousands, we shall probably have to attribute to them other than ornamental uses.

Captain Tom, of the Nishinam tribe of California, according to Powers,[5] had nearly a half bushel of shell beads and trinkets. One string of these, worn by his wife on special occasions, contained sixteen hundred pieces; but these treasures were hoarded because of their value as money rather than as ornaments.

The wampum belts used by many of the tribes of Indians are known to contain enormous numbers of beads. One of the historical belts kept by the Onondagas among their treasures contains nearly ten thousand beads. The famous belt of William Penn has about three thousand.

[1] Du Pratz: History of Louisiana, p. 364.

[2] Lewis and Clark: Expedition up the Missouri, &c., p. 537.

[3] Harmon's Journal, p. 287.

[4] Swan: The Northwest Coast, p. 158.

[5] Powers: Contributions to North American Ethnology, Vol. III, p. 263.

Sir John Lubbock, in his "Prehistoric Times," expresses surprise at the great number of beads sometimes found, instancing the Grave Creek mound of Virginia, which contained between three and four thousand. This number will, however, appear very insignificant when compared with a collection such as the costume of the great King Philip could have furnished.

Drake relates that Philip had a coat "made all of wampampeag," which, when in need of money, he "cuts to pieces, and distributes it plentifully among the Nipmoog sachems and others, as well to the eastward as southward, and all round about."[1] By adding to this store of beads the contents of two belts, one of which was nine inches in breadth, and so long that when placed upon the shoulders it reached to the ankles, we conclude that the greatest collection ever taken from a prehistoric mound could not compare for a moment with the treasure of this one historic chieftain.

A great deal of art is shown in the stringing and mounting of beads. The simplest form is a single strand, a twisted string of vegetable fiber, a strip of buckskin, or a bit of sinew being passed through the perforations. Again, rows of strands are placed side by side and fastened at intervals in such a manner as to keep them approximately parallel, or the beads when long are put on equidistant cross strands, the longitudinal strands serving to keep them in place; they are also woven into the fabric by being mounted upon one of the strands before twisting. It is also a very usual practice to sew them on strips of cloth or buckskin, patterns being produced by using beads of different colors. The manner of stringing in the manufacture of belts will be given in detail under Mnemonic Uses of Beads.

BEADS AS CURRENCY.

It will probably be impossible to prove that the prehistoric peoples of North America employed a medium of exchange in a manner corresponding to our use of money. It is a well-known fact, however, that a currency of shell beads was in general use throughout the Atlantic coast region very early in the historic period.

Of all objects within the reach of savage peoples, shells, either in their natural forms or in fragments artificially fashioned for convenience of use, are the best adapted for such a purpose.

In examining the contents of ancient cemeteries and mounds where all objects of value were to some extent deposited, we find no other relics that could have been conveniently used for such a purpose.

It is not probable that objects subject to rapid decay, such as wood, fruits, and seeds, could ever have come into general use for money, although such objects are employed to some extent by savages in different parts of the world. The unlimited supply or easy manufacture of these objects would be against their use for this purpose, whereas the difficulty of shaping and perforating the flinty substance of shells would prevent such a plentiful production as to destroy the standard of value.

[1] Drake: Book of Indians, p. 27.

Objects and substances having a fairly uniform value, resulting from their utilitarian attributes, have been employed by primitive peoples as standards of value; as, for instance, cattle, in ancient Rome; salt, in Assyria; tin, in Britain, and cocoa, in Mexico. But such mediums of exchange are local in use. With these articles this function is only accidental. The utilization of shells for money would naturally originate from the trade arising from their use as utensils and ornaments in districts remote from the source of supply. Yielding in the worked state a limited supply, and at the same time filling a constant demand, they formed a natural currency, their universal employment for purposes of ornament giving them a fixed and uniform value. They have undoubtedly been greatly prized by the ancient peoples, but on the part of the open-handed savage they were probably valued more as personal ornaments than as a means of gratifying avaricious propensities.

Lewis H. Morgan, who had access to all the sources of information on the subject, says that "wampum has frequently been called the money of the Indian; but there is no sufficient reason for supposing that they ever made it an exclusive currency, or a currency in any sense, more than silver or other ornaments. All personal ornaments, and most other articles of personal property, passed from hand to hand at a fixed value; but they appear to have had no common standard of value until they found it in our currency. If wampum had been their currency it would have had a settled value, to which all other articles would have been referred. There is no doubt that it came nearer to a currency than any other species of property among them, because its uses were so general, and its transit from hand to hand so easy, that everyone could be said to need it." Yet he admits that "the use of wampum reaches back to a remote period upon this continent"; and further, that it was an original Indian notion which prevailed among the Iriquois as early at least as the formation of the League. He goes on to state that "the primitive wampum of the Iriquois consisted of strings of a small fresh-water spiral shell called in the Seneca dialect *Ote ko-á*, the name of which has been bestowed upon the modern wampum."[1]

Loskiel says that "before the Europeans came to North America, the Indians used to make strings of wampom chiefly of small pieces of wood of equal size, stained either black or white. Few were made of muscle, which were esteemed very valuable and difficult to make; for, not having proper tools, they spent much time in finishing them, and yet their work had a clumsy appearance."[2]

Hutchinson is of the opinion that "the Indians resident northeastward of the province of New York had originally no knowledge of this sort of money or medium of trade."[3]

The great body of our historical evidence goes to show, however, that

[1] Morgan, in Fifth Annual Report on the New York State Cabinet of Natural History, pp. 71, 73.

[2] Loskiel: Mission of the United Brethren, Latrobe trans., p. 34.

[3] Hutchinson: History of Mass., Vol. I, p. 406.

a currency of shell was in use among the Atlantic coast tribes when first encountered by the Europeans. Thomas Morton, in speaking of the Indians of New England as far back as 1630, says that "they have a kinde of beads in steede of money to buy withal such things as they want, which they call wampampeak; and it is of two sorts, the one is white and the other is a violet coloure. These are made of the shells of fishe; the white with them is as silver with us, the other as our gould, and for these beads they buy and sell, not only amongst themselves, but even with us. We have used to sell them any of our commodities for this wampampeak, because we know we can have beaver again from them for it: and these beads are current in all parts of New England, from one end of the coast to the other, and although some have endeavoured by example to have the like made, of the same kinde of shels, yet none has ever, as yet, obtained to any perfection in the composure of them, but the Salvages have found a great difference to be in the one and the other; and have knowne the counterfett beads from those of their owne making and doe slight them."[1]

According to Roger Williams also, the Indians of New England, as far back as his observations extend, were engaged in the manufacture of shell money as a well-established industry. It seems altogether impossible that such a custom should have been successfully introduced by the English, as the Indian is well known to be averse to anything like labor excepting in his traditional occupations of war and the chase, and if the whites had introduced it, would certainly have looked to them for a supply by means of trade in skins and game rather than apply himself to a new and strange art. Roger Williams says that "they that live upon the Sea side generally make of it, and as many as they will. The Indians bring downe all their sorts of Furs, which they take in the countrey, both to the Indians and to the English for this Indian Money: this Money the English, French and Dutch, trade to the Indians, six hundred miles in severall ports (north and south from New England) for their Furres, and whatsoever they stand in need of from them." Their methods were also aboriginal, another indication that the art was not of European introduction; and Williams states that "before ever they had awle blades from Europe, they made shift to bore their shell money with stones."[2]

That wampum was also manufactured farther south we learn from Lindström, who is writing of the Indians of New Sweeden: "Their money is made of shells, white, black, and red, worked into beads, and neatly turned and smoothed; one person, however, cannot make more in a day than the value of six or eight stivers. When these beads are worn out, so that they cannot be strung neatly, and even on one thread, they no longer consider them good. Their way of stringing them is to rub the whole thread full of them on their noses; if they find it slides

[1] Thomas Morton, in Historical Tracts, Vol. II, p. 29.

[2] Williams: A Key into the Language of America, p. 144.

smooth and even, like glass beads, then they are considered good, otherwise they break and throw them away."[1]

Although Beverly did not write until the beginning of the eighteenth century, his statements are probably based upon accurate information. Speaking of the Virginia Indians, he says that they "had nothing which they reckoned riches before the English went among them, except *Peak*, *Roenoke*, and such-like trifles made out of the *Cunk Shell*. These past with them instead of Gold and Silver, and serv'd them both for Money and Ornament. It was the *English* alone that taught them first to put a value on their Skins and Furs, and to make a Trade of them."[2]

From Lawson, who wrote in 1714, but whose statements deserve consideration, we also learn that the money of the Carolina Indians is "all made of shells which are found on the coast of Carolina, which are very large and hard so that they are very difficult to cut. Some English smiths have tried to drill this sort of shell-money, and thereby thought to get an advantage; but it proved so hard that nothing could be gained."[3]

Speaking of its use and value in New York, he remarks that "an Englishman could not afford to make so much of this wampum for five or ten times the value; for it is made out of a vast great shell, of which that country affords plenty; where it is ground smaller than the small end of a tobacco pipe, or a large wheat straw." * * * "This the Indians grind on stones and other things until they make it current, but the drilling is the most difficult to the Englishman, which the Indians manage with a nail stuck in a cane or reed. Thus they roll it continually on their thighs with their right hand, holding the bit of shell with their left; so, in time, they drill a hole quite through it which is a very tedious work; but especially in making their ronoak, four of which will scarce make one length of wampum. The Indians are a people that never value their time, so that they can afford to make them, and never need to fear the English will take the trade out of their hands. This is the money with which you may buy skins, furs, slaves, or anything the Indians have; it being their mammon (as our money is to us) that entices and persuades them to do anything, and part with everything they possess, except their children for slaves. As for their wives, they are often sold and their daughters violated for it. With this they buy off murders; and whatsoever a man can do that is ill, this wampum will quit him of and make him, in their opinion, good and virtuous, though never so black before."[4]

Adair confirms the statements made by these writers, and adds emphasis to the fact that the shell beads had, among the Cherokees and other southern Indians, a fixed value as currency. "With these they

[1] Penna. Historical Society, Vol. III, p. 131.

[2] Beverly: History of Virginia, p. 195.

[3] Lawson: History of North Carolina; Raleigh reprint, 1860, p. 315.

[4] On this point, however, the author quoted is apparently at fault, as there is abundance of proof that the whites often engaged successfully in the manufacture of this shell money.

bought and sold at a stated current rate, without the least variation for circumstances either of time or place; and now they will hear nothing patiently of loss or gain, or allow us to heighten the price of our goods, be our reasons ever so strong, or though the exigencies and changes of time may require it."[1]

We find plentiful evidence in the stories of the early Spanish adventurers that beads made from sea shells were held in high esteem by the Indians of the south, but, so far as I am aware, there is no statement indicating that they formed a well-regulated medium of exchange.

In regard to the manufacture of wampum by the whites, the following quotations will be instructive:

"Many people at *Albany* make the *wampum* of the *Indians*, which is their ornament and their money, by grinding some kinds of shells and muscles; this is a considerable profit to the inhabitants."[2]

"Besides the *Europeans*, many of the native *Indians* come annually down to the sea shore, in order to catch clams, proceeding with them afterwards in the manner I have just described. The shells of these clams are used by the *Indians* as money, and make what they call their wampum: they likewise serve their women as an ornament, when they intend to appear in full dress. These wampums are properly made of the purple parts of the shells, which the *Indians* value more than the white parts. A traveller, who goes to trade with the *Indians*, and is well stocked with them, may become a considerable gainer; but if he take gold coin, or bullion, he will undoubtedly be a loser; for the *Indians*, who live farther up the country, put little or no value upon these metals which we reckon so precious, as I have frequently observed in the course of my travels. The *Indians* formerly made their own wampums, though not without a deal of trouble: but at present the *Europeans* employ themselves that way; especially the inhabitants of *Albany*, who get a considerable profit by it. In the sequel I intend to relate the manner of making wampum.[3]

"The article was highly prized as an ornament, and as such constituted an article of trafic between the sea-coast and the interior tribes.
* * *

"The old wampum was made by hand, and was an exceedingly rude article. After the discovery, the Dutch introduced the lathe in its manufacture, polished and perforated it with exactness, and soon had the monopoly of the trade. The principal place of its manufacture was at Hackensak, in New Jersey. The principal deposit of sea shells was Long Island, where the extensive shell banks left by the Indians, on which it is difficult to find a whole shell, show the immense quantities that were manufactured."[4]

The name *wampum* is often applied to shell beads indiscriminately,

[1] Adair: History of the American Indians, p. 170.
[2] Kalm's Travels, London, 1772, Vol. II, p. 100.
[3] *Ibid.*, Vol. I, pp. 190, 191.
[4] Ruttenber: Indian Tribes of the Hudson River, p. 26.

but frequently has a more restricted significance, referring to the small cylindrical varieties used in strings and belts. It was known first in New England as *wampumpeag*, *wampompeage*, *peag*, *wompam* and *wampum;* the Dutch of New Sweden knew it as *seawan*, *sewant*, and *seawant*, while on the Virginia coast, it was called *peak*, a roughly made discoidal variety being known as *ronoak* or *rocnoke*, and heavy flattish beads pierced edgeways were called *runtees*. It is probable that all of these names are American in origin, although there is some difference of opinion as to their derivation. Loskiel says that *wampom* is an Iroquois word meaning muscle, but according to Morgan, who is probably the best modern authority on this subject, the word *wampum* is not Iroquois in origin but Algonkin, as it was first known in New England as *wampumpeage*.

Roger Williams, speaking of the money of the New England Indians, probably the Narragansetts (Algonkin), says that "their white they call *Wompam* (which signifies white); their black *Suckanhock* (*Sácki*, signifying black)." In another place he gives the word *wompi* for white. Wood mentions two varieties of beads known in New England *wampompeage* and *mowhackees*. The latter is probably derived from *mowêsu*, which, according to Williams, also signifies black.

It would seem that we have but little evidence of the ancient use of shell money amongst the tribes of the Mississippi Valley or the Pacific coast; yet we are not without proofs that it came into use at a very early date throughout the entire West, and even today the custom is by no means obsolete. The ancient burial places of the Pacific coast are found to contain large quantities of beads precisely similar to those now used as money by the coast tribes.

Lewis and Clark, speaking of traffic among the Indians of the Columbia River, state that shell beads are held in very high esteem by these people, and that to procure them they will "sacrifice their last article of clothing or their last mouthful of food. Independently of their fondness for them as an ornament these beads are the medium of trade by which they obtain from the Indians still higher up the river, robes, skins, chappeled bread, bear grass."[1]

The *Dentalium* shell has always been the favorite currency of the peoples of the Northwest and is highly valued, especially by the inland tribes. It is frequently found in ancient graves at great distances from the sea-shore. A few specimens have been found in burial places in the Ohio Valley, but we have no means of determining the source from which they were derived. As the modern use of this currency has but little archæologic interest, I will not enlarge upon the subject here. For further information the reader is referred to the following authors: J. K. Lord, The Naturalist in British Columbia, Vol. II, pp. 20 to 26; R. E. C. Stearns in the American Naturalist, Vol. III, No. 1, and in proceedings of the California Academy of Sciences, Vol. V, Part II, p. 113; W. H. Pratt in proceedings of the Davenport Academy of Natural

[1] Lewis and Clark: Expedition up the Missouri, p. 73.

Sciences, Vol. II, Part I, p. 38; and Stephen Powers in Vol. 3, Contributions to North American Ethnology, pp. 21, 24, 30.

MNEMONIC USE OF BEADS.

One of the most remarkable customs practiced by the American Indians is found in the mnemonic use of wampum. This custom had in it a germ of great promise, one which must in time have become a powerful agent in the evolution of art and learning. It was a nucleus about which all the elements of culture could arrange themselves. I shall not at present undertake to divest the custom of adventitious features such as have been introduced by contact with European influence. Yet there is no reason to fear that any of the important or essential features have been derived from outside sources. It is not possible from any known records to demonstrate the great antiquity of this use of wampum. It does not seem probable, however, that a custom so unique and so wide-spread could have grown up within the historic period; nor is it probable that a practice foreign to the genius of tradition-loving races could have become so well established and so dear to their hearts in a few generations.

Mnemonic records are known to have come into use among many nations at a very early stage of culture. Picture writing as developed in the north is but another form of mnemonic record, a fact, a thought, a verse of a song being associated with an ideographic design, more or less suggestive of the subject. The Peruvians had their *quipus*, in which the record was made by associating things to be remembered with knots made in cords of different colors, each combination having a fixed association. The Mexicans had gone further and had achieved a system of picture writing that was very unique and curious, in which a phonetic element had already made its appearance, while the Mayas could boast the discovery of a true phonetic system with an alphabet of twenty-seven sounds.

The mnemonic use of wampum is one which, I imagine, might readily develop from the practice of gift giving and the exchange of tokens of friendship, such mementos being preserved for future reference as reminders of promises of assistance or protection. In time the use of such mementos would develop into a system capable of recording affairs of varied and complicated nature; particular facts or features of treaties would be assinged to particular objects, or portions of objects. With this much accomplished, but one step was necessary to the attainment of a hieroglyphic system—the permanent association of a single object or sign with a particular idea.

The wampum records of the Iroquois were generally in the form of belts, the beads being strung or woven into patterns formed by the use of different colors. By association simply they were made to record history, laws, treaties, and speeches—a fact, a law, a stipulation, or a declaration being "talked into" a particular part or pattern of the design with which it was ever afterwards associated, thus giving addi-

USE OF WAMPUM BELTS IN INDIAN COUNCIL.

Fac simile of a plate in Lafitau.

tional permanency to tradition and bringing it one step further forward in the direction of written records. Such records were, of course, quite useless without the agency of an interpreter. Among the Iroquois, according to Morgan, one of the Onondaga sachems was made hereditary "keeper of wampum," whose duty it was to be thoroughly versed in its interpretation. But knowledge of the contents of these records was not confined to the keeper, or even to the sachems. At a certain season each year the belts were taken from the treasure-house and exposed to the whole tribe, while the history and import of each was publicly recited. This custom is kept up to the present day. It is recorded by Ruttenber that among the Mohicans a certain sachem had charge of the bag of peace which contained the wampum belts and strings used in establishing peace and friendship with the different nations.[1]

Aside from records wampum was used in the form of strings and belts for a variety of purposes; some of them were probably mnemonic, others only partially so, being based either upon its association with the name of some chief or clan, or upon a semi-sacred character resulting from its important uses. It was employed in summoning councils, and the messenger who journeyed from tribe to tribe found in it a well recognized passport. When a council was called it was presented by the delegates from the various tribes as their credentials; it was used in the ceremony of opening and closing councils, as was also the calumet; it assisted in solemnizing oaths and in absolving from them; white, it was a messenger of peace; black, it threatened war, and covered with clay, it expressed grief. "White wampum was the Iroquois emblem of purity and faith, it was hung around the neck of the white dog before it was burned; it was used before the periodical religious festivals for the confession of sins, no confession being regarded as sincere unless recorded with white wampum; further than this, it was the customary offering in condonation of murder, although the purple was sometimes employed. Six strings was the value of a life, or the quantity sent in condonation, for the wampum was rather sent as a regretful confession of the crime, with a petition for forgiveness, than as the actual price of blood."[2] We readily recognize the influence of the Christian missionary in a number of these symbolic uses of wampum.

The literature of wampum would fill a volume, but I forbear presenting more than will give an outline of the subject, confining myself to such quotations as will serve to show clearly the extent and importance of this ancient custom and its attendant practices.

The method of handling the belts of wampum in the presence of ceremonial assemblies is extremely interesting, and cannot be better presented than in the words of eye-witnesses.

[1] Ruttenber: Indian Tribes of the Hudson River, page 43.

[2] Morgan, in Fifth Annual Report on the condition of the New York State Cabinet of Natural History, page 73.

The following is quoted from Brice, who is describing a council held in the Muskingum Valley in 1764:

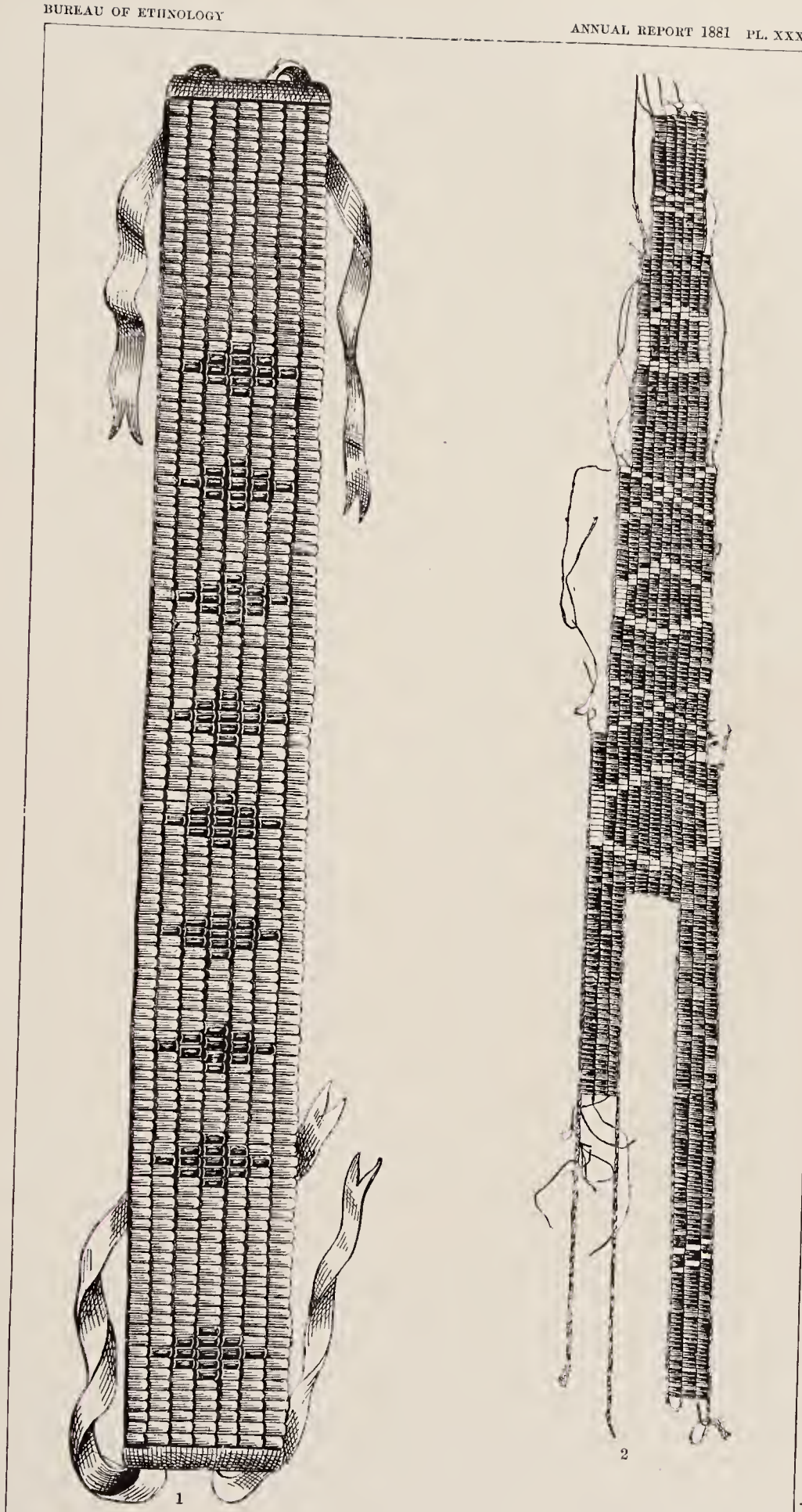
"An Indian council, on solemn occasions, was always opened with preliminary forms, sufficiently wearisome and tedious, but made indispensable by immemorial custom, for this people are as much bound by their conventional usages as the most artificial children of civilization. The forms were varied, to some extent, according to the imagination of the speaker, but in all essential respects they were closely similar throughout the tribes of the Algonkin and and Iroquois lineage.

"They run somewhat as follows, each sentence being pronounced with great solemnity, and confirmed by the delivery of a wampum belt: 'Brothers, with this belt I open your ears that you may hear; I remove grief and sorrow from your hearts; I draw from your feet the thorns that pierced them as you journeyed thither; I clean the seats of the council-house, that you may sit at ease; I wash your head and body, that your spirits may be refreshed; I condole with you on the loss of the friends who have died since we last met; I wipe out any blood which may have been spilt between us.' This ceremony, which, by the delivery of so many belts of wampum, entailed no small expense, was never used except on the most important occasions; and at the councils with Colonel Bouquet the angry warriors seem wholly to have dispensed with it. * * * And his memory was refreshed by belts of wampum, which he delivered after every clause in his harangue, as a pledge of the sincerity and truth of his words.

"These belts were carefully preserved by the hearers as a substitute for written records, a use for which they were the better adapted, as they were often worked in hieroglyphics expressing the meaning they were designed to preserve. Thus at a treaty of peace the principal belt often bore the figure of an Indian and a white man holding a chain between them."[1]

From an account of a council held by the Five Nations at Onondaga nearly two hundred years ago, to which the governor of Canada sent four representatives, I make the following extract: "During the course of the proceedings Cannehoot, a Seneca sachem presented a proposed treaty between the Wagunhas and the Senecas, speaking as follows: 'We come to join the two bodies into one. * * * We come to learn wisdom of the Senecas (giving a belt). We by this belt wipe away the tears from the eyes of your friends, whose relations have been killed in the war. We likewise wipe the paint from your soldiers' faces (giving a second belt). We throw aside the ax which Yonondio put into our hands by this third belt.' A red marble sun is presented—a pipe made of red marble. 'Yonondio is drunk; we wash our hands clean from his actions (giving a fourth belt). * * * We have twelve of your nation prisoners; they shall be brought home in the spring (giving a belt to confirm the promise). We will bring your prisoners home when the strawberries

[1] Brice: History of Fort Wayne, 1868, page 28.



1. Mohawk Belt. 2. Mohawk Belt.

WAMPUM BELTS.

shall be in blossom, at which time we intend to visit Corlear (the governor of New York), and see the place where wampum is made.'

"The belts were accepted by the Five Nations, and their acceptance was a ratification of the treaty. A large belt was also given to the messengers from Albany as their share. A wampum belt sent from Albany was, in the same manner, hung up and afterwards divided."[1]

This indicates a most extravagant use of belts; but since it is probable that as many were received in return this was a matter of little importance. The great profusion of wampum used in some of the later treaties is a matter of surprise. In a council held between four Indian ambassadors from New England and the French thirty-six fine large belts were given by the ambassadors to thank them that their people had not been treated with hostility.[2]

"The appendix to the second volume of Proud's History of Pennsylvania contains the journals of Frederick Christian Post, who was sent by Governor Denny, in 1758, to make a treaty with the Alleghany Indians; and in delivering the governor's answer to the chiefs, on his second visit in the same year, after proposing to them to unite in a treaty of peace which had lately been concluded with the Indians at Easton, and producing sundry belts, one of which was marked with figures representing the English and the Indians delivering the peace-belt to one of the commissioners, he proceeds to say: 'Brethren on the Ohio, if you take the belts we just now gave you, as we do not doubt you will, then by *this belt*'—producing another and using their figurative style of speech—'I make a road for you, and invite you to come to Philadelphia, to your first old council-fire, which we rekindle up again, and remove disputes, and renew the first old treaties of friendship. This is a clear and open road for you; therefore, fear nothing, and come to us with as many as can be of the Delawares, Shawanese, or the Six Nations; we will be glad to see you; we desire all tribes and nations of Indians who are in alliance with you may come.' Whereupon a large white belt, with the figure of a man at each end and streaks of black representing the road from the Ohio to Philadelphia, was then given to them."[3]

Lafitau, whose statements are considered unusually trustworthy, as they were based chiefly on personal observation of the Indian tribes of Canada, gives the following very instructive account of the mnemonic use of wampum:

"All affairs are conducted by means of branches [strings] and necklaces [belts] of porcelain [wampum] which with them take the place of compacts, written agreements, and contracts. * * * The shell, which is used for affairs of state, is worked into little cylinders of a quarter of an inch in length and large in proportion. They are distributed in two ways, in strings and in belts. The strings are composed

[1] Events in Indian History, Lancaster, Pa., 1841, page 143.

[2] History and description of New France, Vol. II, page 256.

[3] Penn, in Memoirs Hist. Soc. Penn'a, Vol. VI, p. 222.

of cylinders threaded without order one after another, like the beads of a rosary; the beads are usually quite white, and are used for affairs of little consequence, or as a preparation for other more considerable presents.[1]

"The belts are large bands, in which little white and purple cylinders are disposed in rows, and tied down with small thongs of leather, which makes a very neat fabric. The length and size and color are proportioned to the importance of the affair. The usual belts are of eleven rows of a hundred and eighty beads each.

"The 'fisk,' or public treasure, consists principally of these belts, which, as I have said, with them, take the place of contracts, of public acts, and of annals or registers. For the savages, having no writing or letters, and therefore finding themselves soon forgetting the transactions that occur among them from time to time, supply this deficiency by making for themselves a local memory by means of words which they attach to these belts, of which each one refers to some particular affair, or some circumstance, which it represents while it exists.

"They are so much consecrated to this use that besides the name *Gaïonni*, which is their name for the kind of belts most used, they bestow that of *Garihona*, which means a transaction; that of *Gaouenda*, voice or word, and of *Gaianderenfera*, which means grandeur or nobility; because all the affairs dignified by these belts are the endowment and province of the *agoïanders* or nobles. It is they who furnish them; and it is among them that they are redivided when presents are made to the village, and when replies to the belts of their ambassadors are sent.

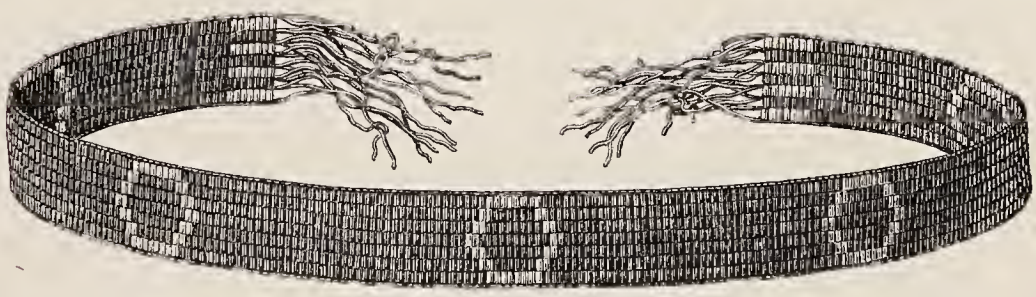
"The *agoïanders* and the ancients have, besides this, the custom of looking over them often together, and of dividing among themselves the care of noting certain ones, which are particularly assigned to them; so that in this way they do not forget anything.

"Their wampum would soon be exhausted if it did not circulate; but in almost all affairs, either within or without, the law requires a reply, word for word, that is to say, for one belt one must give another, to be of about the same value, observing, however, a slight difference in the number of beads, which must be proportioned to the rank of the persons or nations with which they treat.

"They do not believe that any transaction can be concluded without these belts. Whatever proposition is made to them, or reply given them, by word of mouth alone, the affair falls through, they say, and they let it fall through very effectually, as though there had been no question about it. Europeans little informed or little concerned about their usages have slightly inconvenienced them on this point in retaining their belts without giving them a similar response. To avoid the inconvenience which might arise from this they acquired the style of giving only a small quantity, excusing themselves on the plea that their

[1] In order to make the authors meaning quite clear, a free translation has been given of such words as *porcelaine, branches, colliers*, etc., as his use of them is somewhat confusing.

1



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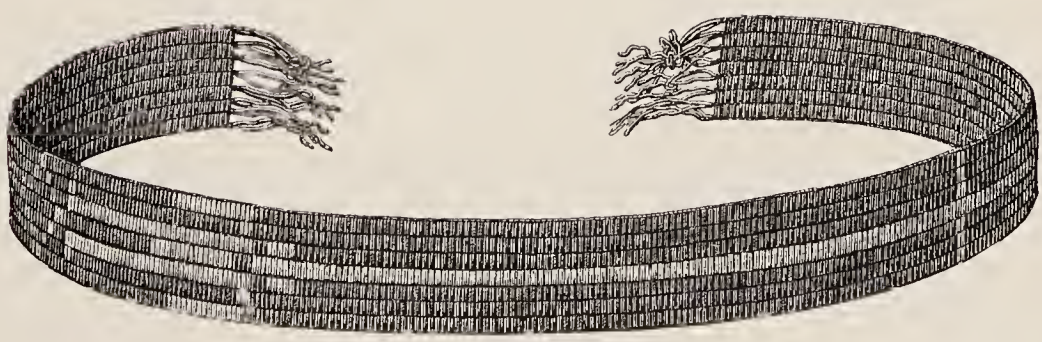


3

WAMPUM BELTS BELONGING TO THE ONONDAGAS.

wampum was exhausted; and they supplied the rest with packages of deer-skin, in return for which they were given trinkets of small value, so that transactions between the Europeans and them have become a sort of trade.

"Although all the savage nations of America make various kinds of ornaments of shells, I believe that it is only those of North America who employ them in transactions. I cannot even affirm that all of these do."[1]

A very complete account of wampum is given by Loskiel, from whose work the following extract is made:

"Four or six strings joined in one breadth, and fastened to each other with fine thread, make a *belt of wampom*, being about three or four inches wide, and three feet long, containing, perhaps, four, eight, or twelve fathom of wampom, in proportion to its required length and breadth. This is determined by the importance of the subject which these belts are intended either to explain or confirm, or by the dignity of the persons to whom they are to be delivered. Everything of moment transacted at solemn councils, either between the Indians themselves or with Europeans, is ratified and made valid by strings and belts of wampom. Formerly, they used to give sanction to their treaties by delivering a wing of some large bird; and this custom still prevails among the more western nations, in transacting business with the Delawares. But the Delawares themselves, the Iroquois, and the nations in league with them, are now sufficiently provided with handsome and well-wrought strings and belts of wampom. Upon the delivery of a string, a long speech may be made and much said upon the subject under consideration, *but when a belt is given few words are spoken;* but they must be words of great importance, frequently requiring an explanation. Whenever the speaker has pronounced some important sentence, he delivers a string of wampom, adding, 'I give this string of wampom as a confirmation of what I have spoken'; but the chief subject of his discourse he confirms with a belt. The answers given to a speech thus delivered must also be confirmed by strings and belts of wampom, of the same size and number as those received. Neither the colour nor the other qualities of wampom are a matter of indifference, but have an immediate reference to those things which they are meant to confirm. The brown or deep violet, called black by the Indians, always means something of severe or doubtful import; but the white is the colour of peace. Thus, if a string or belt of wampom is intended to confirm a warning against evil, or an earnest reproof, it is delivered in black. When a nation is called upon to go to war, or war declared against it, the belt is black, or marked with red, called by them, the *colour of blood*, having in the middle the figure of an hatchet in white wampom. * * * They refer to them as public records, carefully preserving them in a chest made for that purpose. At certain seasons they meet to study their meaning, and to renew the ideas of which they were an emblem

[1] Lafitau: Mœurs des Sauvages Ameriquains, 1724, tom. II, pp. 502–'3 and 506–'7.

or confirmation. On such occasions they sit down around the chest, take out one string or belt after the other, handing it about to every person present, and that they may all comprehend its meaning, repeat the words pronounced on its delivery in their whole convention. By these means they are enabled to remember the promises reciprocally made by the different parties; and it is their custom to admit even the young boys, who are related to the chiefs, to their assemblies; they become early acquainted with all the affairs of the State; thus the contents of their documents are transmitted to posterity, and cannot be easily forgotten."[1]

It is to be presumed that if a treaty or a promise were broken, the belt would be released from its office and in the same form, or worked into another, could again be used. Otherwise the records, if properly kept, would in time become extremely cumbersome.

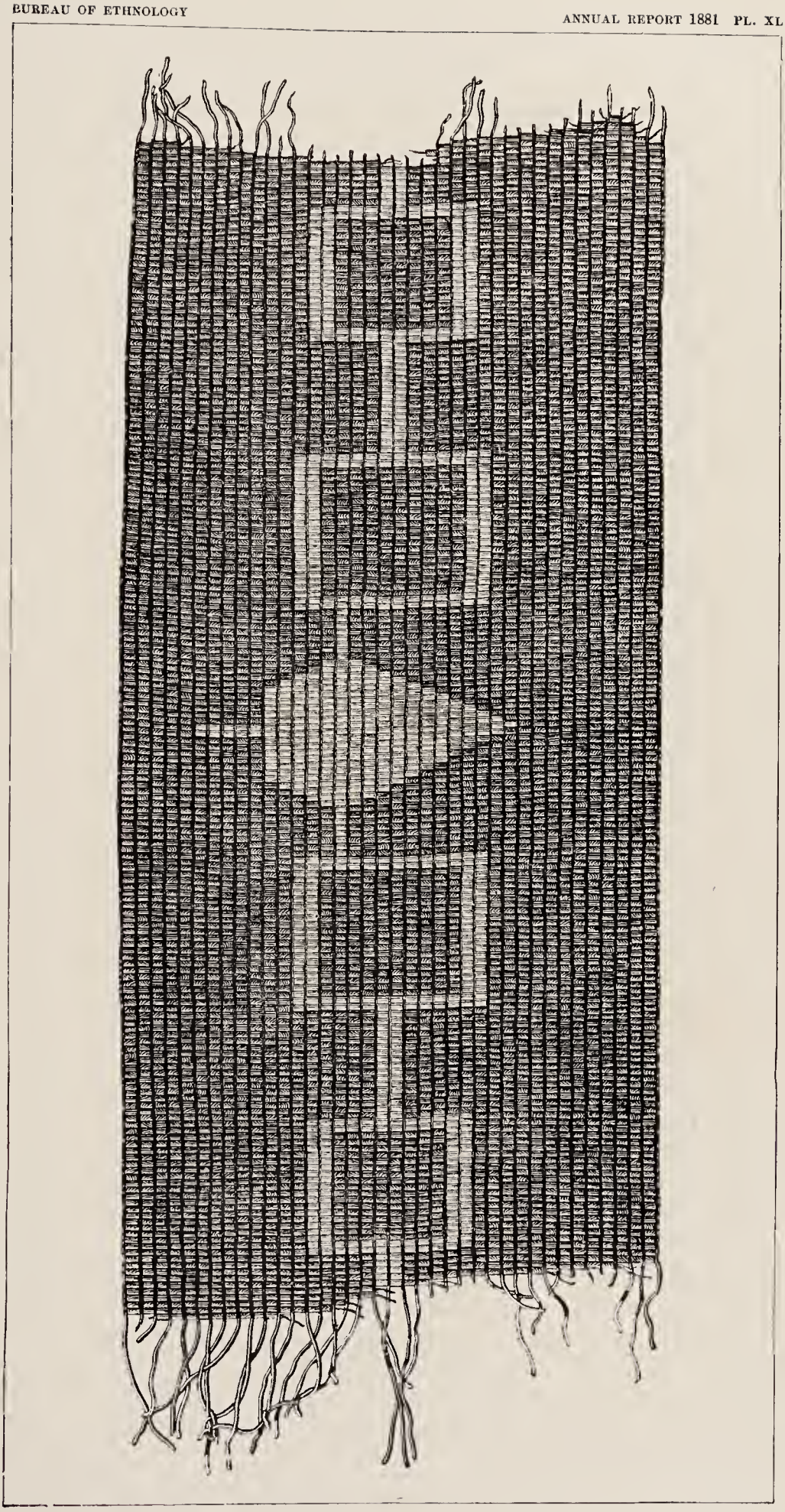
The repudiation of a treaty and of the wampum which accompanied it is recorded by Brice. It was at a council held at Miami, in 1790, between Mr. Gamelin and a number of tribes. Mr. Gamelin in beginning his speech presented each nation with strings of wampum, but "the Indians were displeased with the treaty, and after consultation returned the wampum, saying: 'From all quarters we receive speeches from the Americans and not one is alike. We suppose that they intend to deceive us. Then take back your branches of wampum.' The Pottawatomies were better pleased with the speeches and accepted the wampum."[2]

Another good example which illustrates the manner of canceling treaties, confirmed by wampum, is given by Mr. Gilpin:

"When Washington, then but a youth of twenty-one, was intrusted by the colonial governor of Virginia with a mission to the western wilds of Pennsylvania, where the French from Canada were then penetrating and had already established, as was believed, four posts within our limits and were seeking to unite the natives in alliance against us, * * * he found that such an alliance had indeed been formed. He found that they had exchanged with the French, as its symbol, a wampum belt on which four houses were rudely embroidered—the representations of the posts which were to be defended, even at the risk of war. Influenced by his remontrances, the Indian sachems consented to withdraw from the alliance; but they declared that the belt of wampum must be returned before the agreement could be abolished; and one of the sachems repaired to the French commander in order to restore to him the token of the warlike compact, and to proclaim the intention of the red men to take no part in the impending struggle."[3]

Heckewelder relates that "it once happened that war messengers endeavored to persuade and compel a nation to accept the belt by laying it on the shoulders or thigh of the chief, who, however, after shaking it

[1] Loskiel: Missions of the United Brethren. Trans. by La Trobe, Book 1, p. 26.
[2] Brice: History of Fort Wayne, p. 118.
[3] Gilpin, in Memoirs of the Hist. Soc. of Penna. Vol. VI, p. 248.



WAMPUM BELT BELONGING TO THE ONONDAGAS.

off without touching it with his hands, afterwards, with a stick, threw it after them, as if he threw a snake or toad out of his way."[1]

It is remarkable that other objects were not more frequently used for mnemonic records. We can only explain the partiality shown to wampum on the supposition that the idea of value was not entirely lost sight of and that importance was attached to a record which in itself merited preservation. Yet instances of the use of other objects are often met with. Parkman states that "the figures on wampum belts of the Iroquois were for the most part simply mnemonic. So also were those carved in wooden tables, or painted on bark or skin, to preserve in memory the songs of war, hunting, or magic."[2]

At one of the councils at Onondaga in 1690, a treaty was pledged and recorded in wampum by all the contracting parties but the New England colonies, which sent a wooden model of a fish as a token of their adherence to the terms of the treaty.[3]

Hunter, speaking of the manners and customs of the Osages, states that "they use significant emblems, such as the wing of the swan and wild goose, wampum, and pipes, in overtures for peace, while arrows, war clubs, and black and red painting, are used as indications or declarations of war. Any article, such as a skin painted black, or the wing of a raven, represents the death of friends, and when colored or striped with red, that of enemies. Amongst the Canada Indians when peace was conceded, a reddened hatchet was buried as a symbol of the oblivion of all past hostility between the contracting parties. A mutual exchange of neck ornaments sealed the treaty after its terms were debated and determined. But all was not yet over, for the chiefs on each side proffered and accepted presents of rare articles, such as calumets of peace, embroidered deer skins, &c. This kind of ceremonial barter being terminated to their mutual satisfaction, or otherwise, the conference broke up."[4]

Gumilla says that the Oronoco Indians ratify their treaties with sticks which they give reciprocally,[5] and the Araucanians, according to Molina, carry in their hands, when they conclude a peace, the branches of a tree, regarded as sacred by them, which they present to each other.[6]

I have already enumerated the various kinds of beads and shown the sources from which they were derived and the uses to which they were applied. I have yet to describe the manner in which they are strung or combined in strings and belts.

The beads chosen as most convenient for stringing or weaving into fabrics were small cylinders from one-eighth to one-quarter of an inch in diameter, and from one-quarter to one-half an inch in length. White strings or belts were sufficient for the expression of simple ideas or the

[1] Heckewelder: Indian Nations, 1876, p. 110.
[2] Parkman: Jesuits in North America, p. xxxiii.
[3] Events in Indian History, Lancaster, Pa., 1841, p. 143.
[4] Hunter: Indian Manners and Customs, p. 192.
[5] Gumilla: Histoire de Orinoque, Vol. III, p. 91.
[6] Molina: History of Chili, Vol. I, p. 119.

association of simple facts, but the combinations of colors in patterns rendered it possible to record much more complicated affairs. In belts used for mnemonic purposes the colors were generally arranged without reference to the character of the facts or thoughts to be intrusted to them, but in a few cases the figures are ideographic, and are significant of the event to be memorized. Strings cannot be utilized in this way.

Wampum in strings.—From Mr. Beauchamp's notes I have compiled the following brief account of the use of strings of wampum among the modern Iroquois. Six strings of purple beads united in a cluster represent the six nations. When the tribes meet the strands are arranged in a circle, which signifies that the council is opened. The Onondagas are represented by seven strings, which contain a few white beads; the Cayugas by six strands, all purple, and the Tuscaroras by seven strands, nearly all purple. The Mohawks have six strings, on which there are two purple beads to one white. These are illustrated in Fig. 2, Plate XLIV. There are four strings in the Oneida cluster; these contain two purple to one white bead. The Senecas have four strings, with two purple beads to one white. The three nations which were brothers are represented by similar clusters.

When a new chief is installed the address delivered on the occasion is "talked into" ten very long strings of white wampum. Three strings, mostly white, represent the name of the new chief. One of these clusters is shown in Fig. 1, Plate XLIV.[1] When a chief dies he is mourned on ten strings of black wampum. If he has merely lost his office, six short strings are used.

According to Mr. Beauchamp, possession of beads gives authority, and they are also used as credentials, or, as the Indians express it, "Chief's wampum all same as your letter." Such of these strings as remain in existence are still in use among the Iroquois, and are considered very precious by them, being made of antique hand-made beads.

In the literature relating to our Indian tribes we find occasional reference to the use of strings of wampum in ways that indicate that they were invested with certain protective and authoritative qualities, doubtless from their association with the name of some chief, clan, or tribe.

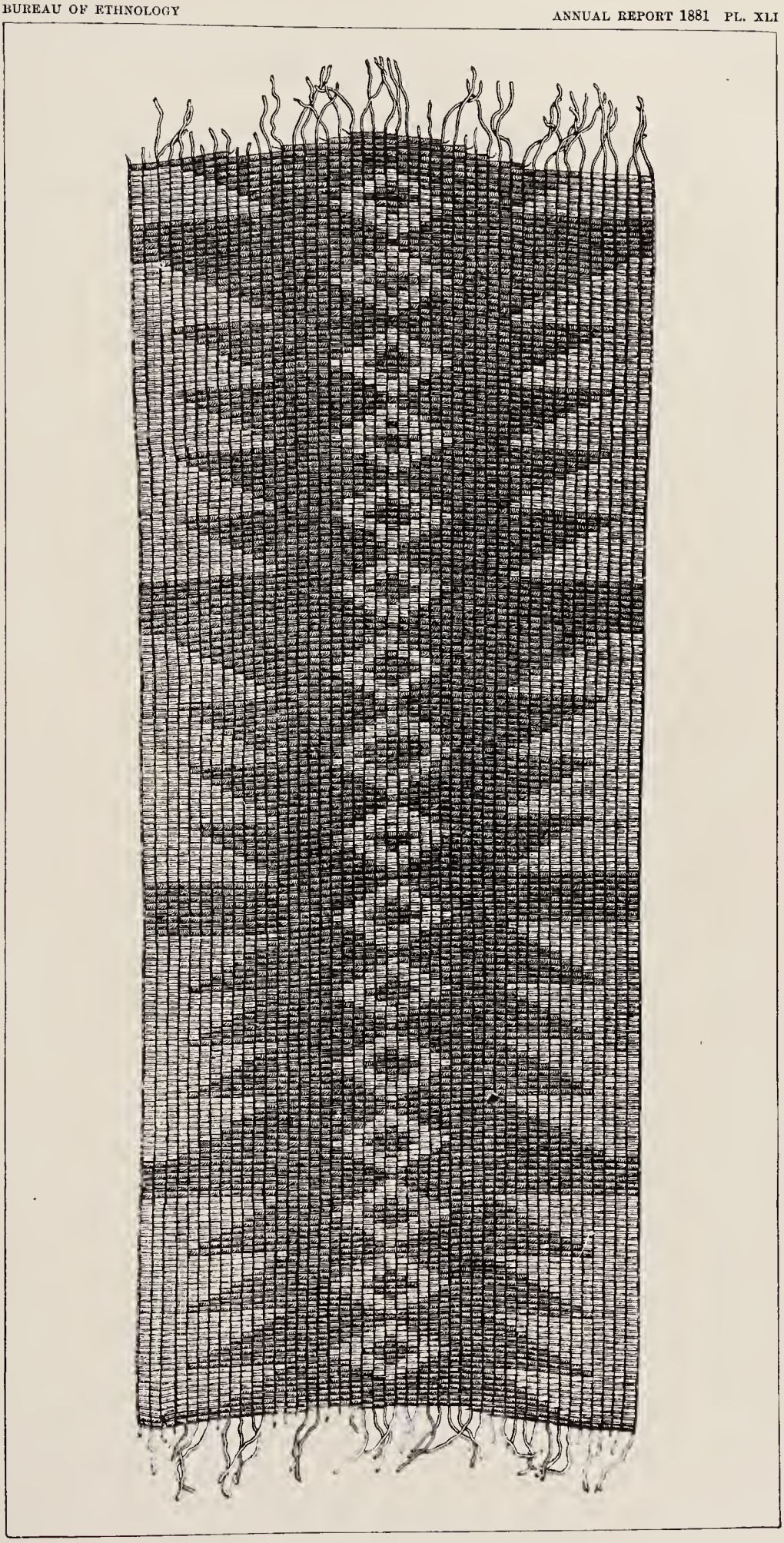
It is recorded that on one occasion Logan, the Mingo chief, saved a captive white from torture by rushing through the circle of Indians and throwing a string of wampum about the prisoner's neck. Through the virtue of this string he was enabled to lead him away and adopt him into his family.

A somewhat different use is mentioned by Pike, to whom a Chippewa chief made a speech, during which he presented his pipe to Mr. Pike to bear to the Sioux. Attached to the pipe were seven strings of wampum, which signified that authority was given by seven chiefs of the Chippeway to conclude peace or make war.[2]

Wampum belts.—In the manufacture of belts a great deal of skill and

[1] From an original sketch by Mr. Beauchamp.

[2] Pike: Travels through the Western Territories of N. A., 1805–'7, p. 103.



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taste have been shown. The large figured varieties were intricate in design and extremely pleasing in color. Belts of wampum beads were probably used simply as a part of the costume long before they became the vehicles of tradition, and beads were doubtless used in other parts of the costume in a similar manner. It is said that in New England they were made by the women; in later times it is probable that the whites engaged to some extent in their manufacture.

Mr. Morgan gives such a good account of the details of belt making that I beg leave to quote him in full:

"In making a belt no particular pattern was followed; sometimes they are of the width of three fingers and three feet long, in other instances as wide as the hand and over three feet in length; sometimes they are all of one color, in others variegated, and in still others woven with the figures of men to symbolize, by their attitudes, the objects or events they were designed to commemorate. The most common width was three fingers, or the width of seven beads, the length ranging from two to six feet. In belt making, which is a simple process, eight strands or cords of bark thread are first twisted, from filaments of slippery elm, of the requisite length and size; after which they are passed through a strip of deer-skin to separate them at equal distances from each other in parallel lines. A piece of splint is then sprung in the form of a bow, to which each end of the several strings is secured, and by which all of them are held in tension, like warp threads in a weaving machine. Seven beads, these making the intended width of the belt, are then run upon a thread by means of a needle, and are passed under the cords at right angles, so as to bring one bead lengthwise between each cord and the one next in position. The thread is then passed back again along the upper side of the cords and again through each of the beads; so that each bead is held firmly in its place by means of two threads, one passing under and one above the cords. This process is continued until the belt reaches its intended length, when the ends of the cords are tied, the end of the belt covered and afterward trimmed with ribbons. In ancient times both the cords and the thread were of sinew."[1]

In another place Mr. Morgan states that belts were also made by covering one side of a deer-skin belt with beads, probably by sewing them on;[2] a method which is everywhere common in the use of glass beads in modern work, but is not noticed in any of the mnemonic belts now extant. It is a remarkable as well as a lamentable fact that none of the great collections of the country can boast the possession of a wampum belt. Considering their importance in our early history, and the great numbers that at one time must have been in existence, this is rather extraordinary. I have taken considerable pains to collect accurate representations of a number of examples of the ancient belts for

[1] Morgan, in Fifth Annual Report on the Condition of the New York State Cabinet of Natural History, 1852, p. 72.

[2] Morgan: League of the Iroquois, p. 387.

this work, and am only sorry that I am unable to present them in color—the only method by which they can be adequately shown. As those which have come to my notice represent but a few localities, I shall insert descriptions of a number from regions as remote as possible. There is, however, great uniformity in design and method of construction; the result, probably, of their international character. From Heckewelder I quote the following:

"Their belts of wampum are of different dimensions, both as to the length and breadth. White and black wampum are the kinds they use; the former denoting that which is good, as peace ,friendship, good-will, &c.; the latter the reverse; yet occasionally the black also is made use of on peace errands, when the white cannot be procured; but previous to its being produced for such purpose, it must be daubed all over with chalk, white clay, or anything which changes the color from black to white. * * * A black belt with the mark of a hatchet made on it with red paint is a war belt, which, when sent to a nation, together with a twist or roll of tobacco, is an invitation to join in a war. * * * Roads from one friendly nation to another are generally marked on the belt by one or two rows of white wampum interwoven in the black, and running through the middle, and from end to end. It means that they are on good terms, and keep up a friendly intercourse with each other."[1]

A belt accepted by the Indians of Western Pennsylvania from the French in a treaty which secured to the latter four forts within English territory had embroidered upon it four houses, pictographic representations of the forts.

Another example of the belts used in Pennsylvania, upwards of a century ago, is described in Beatty's Journal. The Delawares, in explaining to Beatty a former treaty with Sir William Johnson, "showed a large belt of wampum of friendship which Sir William Johnson had given them. On each edge of this were several rows of black wampum, and in the middle were several rows of white wampum. In the middle of the belt was a figure of a diamond, in white wampum, which they called the council fire. The white streak they called the path from him to them and them to him."[2]

Loskiel states that "the Indian women are very dexterous in weaving the strings of wampom into belts, and marking them with different figures, perfectly agreeing with the different subjects contained in the speech. These figures are marked with white wampom upon black, and with black upon the white belts. For example, in a *belt of peace*, they very dexterously represent, in black wampom, two hands joined. The belt of peace is white, a fathom long and a hand's breadth."[3]

In Plate XXXVII I present a fac-simile reproduction of a plate from the well known work of Lafitau,[4] in which we have a graphic yet

[1] Heckewelder: Indian Nations, 1876, pp. 108-'9-'10.

[2] Beatty: Journal of Two Months Tour, 1768, p. 67.

[3] Loskiel: Missions of the United Brethren. Trans. by La Trobe, 1794. Book I, p. 26.

[4] Lafitau: Mœurs des Sauvages Ameriquains, Tome, II, p. 314.

highly conventional representation of a council or treaty in which wampum belts were used. It is probably drawn from description and is far from truthful in detail. The more important facts are, however, very clearly presented. No information is given either of the people or the locality. The scene is laid in the middle of a broad featureless plain, the monotony of which is broken by three highly conventionalized trees. The parties to the treaty are ranged in two rows, placed, face to face. The chief who speaks stands at the farther end holding a belt in his right hand. Three other belts lie upon the mat at his feet, while a fifth is shown on a large scale in the foreground. The patterns can not be clearly made out, but in a general way resemble very closely the designs woven into the belts of the Iroquois.

The small belt shown in Fig. 1. Plate XXXVIII, is probably one of the most recent examples. The cut is copied from Plate 1 of the Fifth Annual Report of the Regents of the University of New York on the condition of the State Cabinet of Natural History, p. 72. The beads of which it is composed formerly belonged to the celebrated Mohawk chief, Joseph Brant. They were afterwards purchased from his daughter by Mr. Morgan. In 1850 they were taken to Tonawanda, in the State of New York, and made into this belt. The trimmings are apparently of ribbons, and the symmetry and uniformity of the whole work give it a new look not noticeable in the other specimens. The design consists of a row of dark diamond-shaped figures upon a white ground. It is now preserved in the State Cabinet of Natural History at Albany.

A belt of unusual form is shown in Fig. 2, Plate XXXVIII. It was kindly lent by Mrs. E. A. Smith, of Jersey City, by whom it was obtained from the Mohawks. It is 26 inches (251 beads) in length and in width varies from three inches (11 beads) at one end to about one inch (5 beads) at the other. It is bifurcated at the wide end, five rows having been omitted from the middle of the belt for about one-third of the length. Near the middle of the belt one row of beads is dropped from each side. Between this and the smaller end at nearly equal intervals it is twice depleted in a like manner. The beads are quite irregular in shape and size, but rather new looking and are strung in the usual manner, the longitudinal strings being buckskin and the transverse small cords of vegetable fiber. The ends and edges are all neatly finished by wrapping the marginal strings with a thin fillet of buckskin. The figures are in white beads upon a ground of purple. The form of this belt indicates that it has been adapted to some particular use, the placing of cords at the corners and shoulders suggesting its attachment in a fixed position to some part of the person or costume.

In Plates XXXIX, XL, XLI and XLII, I present a series of illustrations of the wampum belts belonging to the Onondagas. They are preserved as a most precious treasure by these people at their agency in Onondaga County, New York. The drawings were made by Mr. Trill from a series of minute photographs made from the original

belts by General J. S. Clark, of Auburn, New York. These were obtained for me by the Rev. W. M. Beauchamp, of Baldwinsville, New York, who has also very kindly furnished many of the facts embodied in the following descriptions.[1]

These belts are made in the usual manner, and present a great variety of shapes, sizes, and designs. Their full history has never been obtained by the whites, and it is not probable that the Indians themselves have preserved a very full account of their origin and significance. They are all ancient, and, judging by their appearance, must date far back in the history of the League. Many of them are quite fragmentary, and fears are entertained that they will gradually fall to pieces and be lost It is to be hoped that measures will be taken to have them preserved at least in the form of accurate chromo-lithographs. Mr. Beauchamp, states that they are yearly wasting away, as a little wampum is annually cast into the fire at the burning of the "white dog," and these belts are the source of supply.

The small belt presented in Fig. 1, Plate XXXIX, is somewhat fragmentary, an unknown number of beads having been lost from the ends. It is seven rows wide and at present two hundred beads long. The design consists of a series of five double diamonds worked in dark wampum upon white. At one end a few rows of an additional figure remain, and at the other a small white cross is worked upon a ground of dark beads. The number of figures may be significant of the number of parties to a treaty.

Fig. 2 represents a well preserved belt, seven rows in width and about three hundred and twenty in length. The ground is of dark wampum, on which are worked five hexagonal figures of white wampum. For a short space at the ends alternate rows are white. As was suggested in regard to the preceding belt, the figures in this may represent the parties to a treaty.

The belt shown in Fig 3 differs from the others in being pictographic. It is also quite perfect, although the character of the beads indicates considerable age. It is seven rows in width and three hundred and fifty beads in length. The figures are white, on a dark ground, and consist of a cross near one end, connected by a single row of beads with the head of the figure of a man toward the other end. Beneath the feet of the elementary man the figure of a diamond is worked. The cross is probably significant of the mission of the man who comes from a long distance to the lodge or council of the red man. This is probably a French belt.

The remnant of a very handsome belt is shown in Plate XL. Considerable wampum has been lost from both ends, but the design appears to be nearly perfect, and consists of a trowel or heart-shaped figure in the center with two rectangular figures on the right and two on the left. These are in white upon a dark ground. Mr. Beauchamp states that it

[1] Mr. Beauchamp has published many interesting facts in regard to these belts in the American Antiquarian, Vol. II, No. 3.

WAMPUM BELT BELONGING TO THE ONONDAGAS.

THE PENN BELT. (¼)

is said to be very old, and is thought to represent the formation of the Iroquois league and to signify "one heart for all the nations." He doubts its great antiquity as the beads are too regular for hand-made cylinders. The belt is thirty-eight rows wide and about two hundred beads in length.

The large elaborately figured belt shown in Plate XLI is almost perfect. The lateral margins are white; a broad notched band of dark wampum occupies the middle of this belt; through this from end to end runs a chain of white diamonds, sixteen in number, which may represent States or nations. It is forty-five rows wide and two hundred and forty beads long.

The magnificent belt shown in Plate XLII, is probably the finest example in existence. It is fifteen rows wide and six hundred and fifty in length, making the enormous total of nine thousand seven hundred and fifty beads. Mr. Beauchamp believes that this belt, or one like it, has been described as representing the formation of the League. From Webster's[1] statement, that it was "made by George Washington," he surmises that it is a belt memorizing a covenant between the Indians and the government. In the center is a house which has three gables and three compartments. Next the house on either side are two pictographic men, who appear to stand beneath protecting arms which pass over their heads, connect with the house, and grasp the hands of the first personages immediately on the right and left. In all there are fifteen figures of men, two being connected with the house; of the others, six stand on the right and seven on the left of the central group. It is suggested by Mr. Beauchamp that these figures may represent the thirteen colonies.

Six other belts are shown in the photographs procured by General Price. One of them is thirteen rows wide and two hundred and fifty beads in length. The light ground is decorated with groups of triple chevrons. This belt is somewhat fragmentary. Another is forty-nine rows wide, being the widest example known. The original length cannot be determined, but at present it is two hundred and forty beads in length, and hence contains about twelve thousand beads. The pattern is simple, consisting of a dark ground notched at the edges with triangular figures of white. As the four remaining belts of this fine collection have no features of especial interest, they need not be described here.

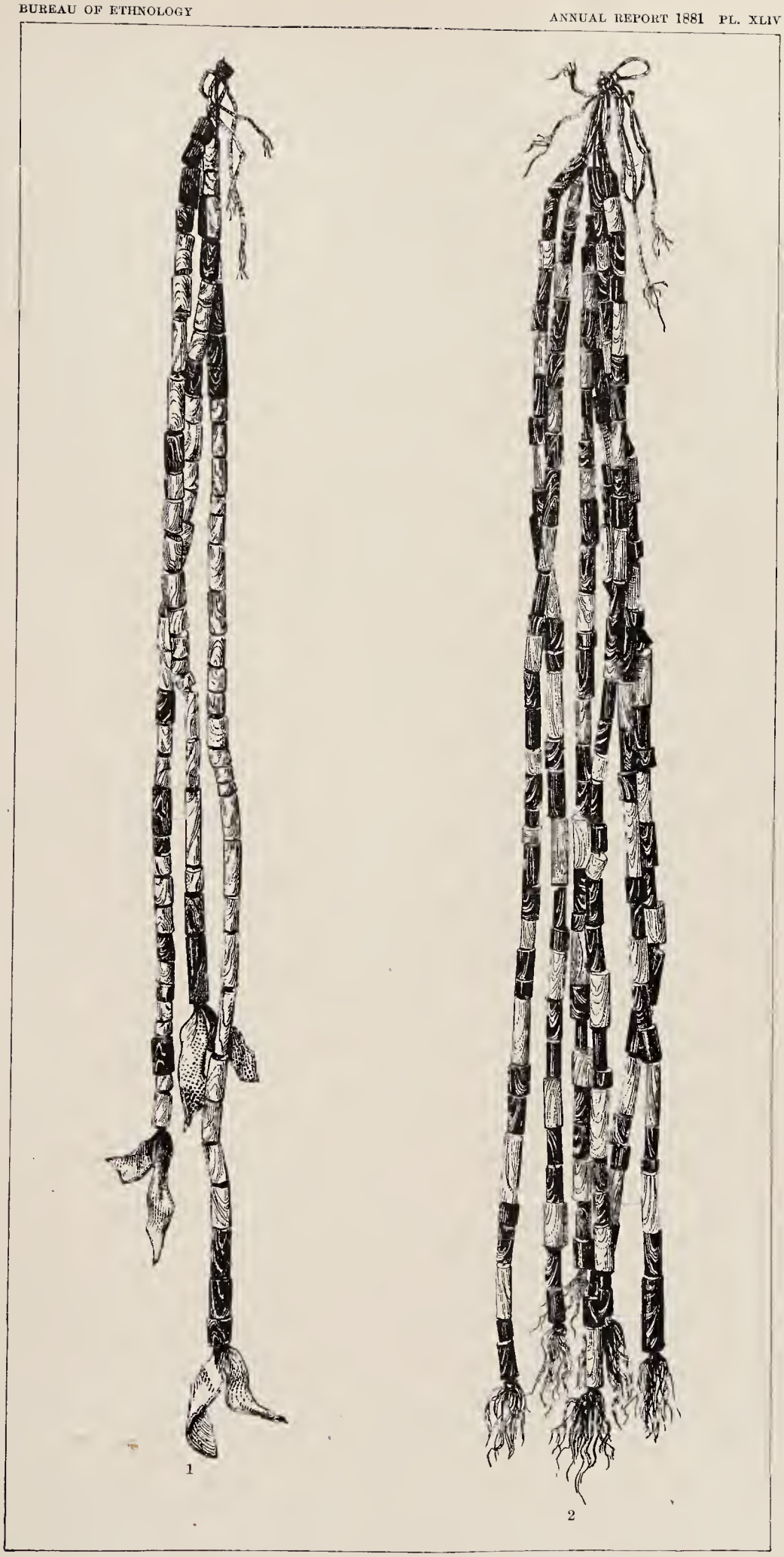
The remarkable belt shown in Plate XLIII has an extremely interesting, although a somewhat incomplete, history attached to it. It is believed to be the original belt delivered by the Leni-Lenape sachems to William Penn at the celebrated treaty under the elm tree at Shackamaxon in 1682. Although there is no documentary evidence to show that this identical belt was delivered on that occasion, it is conceded on all hands that it came into the possession of the great founder of Penn-

[1] Present chief of the Onondagas.

sylvania at some one of his treaties with the tribes that occupied the province ceded to him. Up to the year 1857 this belt remained in the keeping of the Penn family. In March, 1857, it was presented to the Pennsylvania Historical Society by Granville John Penn, a great grandson of William Penn. Mr. Penn, in his speech on this occasion,[1] states that there can be no doubt that this is the identical belt used at the treaty, and presents his views in the following language: "In the first place, its dimensions are greater than of those used on more ordinary occasions, of which we have one still in our possession—this belt being composed of eighteen strings of wampum—which is a proof that it was the record of some very important negotiation. In the next place, in the center of the belt, which is of white wampum, are delineated in dark-colored beads, in a rude but graphic style, two figures—that of an Indian grasping with the hand of friendship the hand of a man evidently intended to be represented in the European costume, wearing a hat; which can only be interpreted as having reference to the treaty of peace and friendship which was then concluded between William Penn and the Indians, and recorded by them in their own simple but descriptive mode of expressing their meaning, by the employment of hieroglyphics. Then the fact of its having been preserved in the family of the founder from that period to the present time, having descended through three generations, gives an authenticity to the document which leaves no doubt of its genuineness; and as the chain and medal which were presented by the Parliament to his father, the admiral, for his naval services, have descended amongst the family archives unaccompanied by any written document, but is recorded on the journals of the House of Commons, equal authenticity may be claimed for the wampum belt confirmatory of the treaty made by his son with the Indians; which event is recorded on the page of history, though, like the older relic, it has been unaccompanied in its descent by any document in writing."

It will be seen, by reference to the accompanying illustration, that beside the two figures of men there are three oblique bands of dark wampum, one on the left and two on the right. The one next the central group on the right is somewhat broken, and consists of two long bands and one short one. It is probable that these bands were used to record, by association, some important features of the treaty in which the belt was used. The beads are strung upon cords made of sinew or vegetable fibre, while the longitudinal fillets are of buckskin. This belt may be seen at the rooms of the Historical Society of Pennsylvania.

[1] The proceedings attending the presentation are fully recorded in the Memoirs of the Historical Society of Pennsylvania, volume iii, page 207. A full size lithographic illustration of the belt printed in color is also given.



1. Name of New Chief. 2. "Mohawk."

STRINGS OF WAMPUM.

PENDANTS.

It would probably be vain to attempt to determine how pendant ornaments first eame into use, whether from some utilitarian praetiee or through some superstitious notion. It matters not, however, whether the first pendant was an implement, a utensil, or a fetichitic talisman; it has developed by slow stages into an ornament upon which has been lavished the best efforts of culture and skill. The simple gorget of shell suspended upon the naked breast of the preadamite is the prototype of many a eostly jewel and many a prineely decoration. With the American savage it was a guardian spirit, invested with the mystery and the power of the sea, and among the more eultured tribes beeame in time the reeeptaele of the most ambitious efforts of a phenominal art. The important plaee the gorget has taken in ornament and as a means of displaying personal aggrandizement has made it a most powerful agent in the evolution of the arts of taste.

As a rule the larger and more important pendants are employed as gorgets, but vast numbers of the smaller specimens are strung with beads at intervals along the strings, attached as auxiliary pendants to the larger gorgets, suspended from the nose, ears, and wrists, or form tinkling borders to head-dresses and garments. These pendants consist either of entire shells, or of parts of shells, piereed or grooved to faeilitate suspension. The purely artifieial forms are infinitely varied. The character of the shell, however, has much to do with the form of the finished ornaments, deeiding their thiekness and often their outline. In size they range from extremely minute forms to plates six or more inehes in diameter. The perforations, in position and number, are greatly varied, but as a rule the larger diseoidal pendants will be found to have two marginal perforations for suspension.

These nicely-polished shell-disks afforded tempting tablets for the primitive artist, and retain many speeimens of his work as an engraver. The engraved specimens, however, should be treated separately, according to the elass of design whieh they contain. Plain pendants need but a brief notiee, and may be treated together as one group, with such subdivisions only as may be suggested by their form, their derivation, or their geographieal distribution.

Plain pendants.—It will be unneeessary to eite authorities to show that our aneient peoples were fond of pendant ornaments, and wore them without stint, but to illustrate the manner in which they were used and the methods of eombining them with other articles of jewelry in neeklaces, braeelets, &c., I shall refer briefly to the literature of the period of Ameriean diseovery.

The inhabitants of Mexieo are said to have been very simple in the matter of dress, but displayed mueh vanity in their profuse employment of personal ornament. Besides feathers and jewels, with whieh

they adorned their clothes, they wore pendants to the ears, nose, and lips, as well as necklaces, bracelets, and anklets. The ear ornaments of the poor were shells, pieces of crystal, amber, and other brilliant stones, but the rich wore pearls, emeralds, amethysts, or other gems, set in gold.[1] The priestly personages so graphically delineated in the ancient Aztec manuscripts are as a rule loaded down with pendant ornaments. In traveling north along the west coast of Mexico the Friar Niza encountered Indians who wore many large shells of mother of pearl about their necks, and farther up toward Cibola the inhabitants wore pearl shells upon their foreheads;[2] and Cabeça de Vaca when among the pueblos of New Mexico noticed beads and corals that came from the "South Sea." Ornaments made from marine shells are found in many of the ancient ruins to-day. They are also highly valued by the modern Indians of this region.

In the earliest accounts of the Indians of the Atlantic coast we find frequent mention of the use of pendants and gorgets, and the manner of wearing them as ornaments. Beverly, after having described beads made of a shell resembling the English buglas, says that they also make "runtees" of the same shell, and grind them as smooth as peak. "These are either large like an oval Bead, drill'd the length of the Oval, or else they are circular and flat, almost an Inch over, and one Third of an Inch thick, and drill'd edgeways. Of this Shell they also make round Tablets of about four Inches Diameter, which they polish as smooth as the other, and sometimes they etch or grave thereon Circles, Stars, a half Moon, or any other Figure suitable to their Fancy. These they wear instead of Medals before or behind their Neck, and use the *Peak*, *Runtees*, and Pipes for Coronets, Bracelets, Belts, or long Strings hanging down before the Breast, or else they lace their Garments with them, and adorn their *Tomahawks*, and every other thing that they value."[3] The "Pipes" here spoken of were probably long, heavy cylindrical beads.

In referring to this class of ornaments, Lafitau says: "The collars which the savages sometimes wear around the neck are about a foot in diameter, and are not different from those which one now sees on some antiques, on the necks of statues of barbarians. The northern savages wear on the breast a plate of hollow shell, as long as the hand, which has the same effect as that which was called *Bulla* among the Romans."[4]

Wood, speaking of the Indians of Northern New England, in 1634, says: "Although they be thus poore, yet is there in them the sparkes of naturall pride, which appeares in their longing desire after many kinds of ornaments, wearing pendants in their eares, as formes of birds, beasts, and fishes carved out of bone, shels, and stone, with long brace-

[1] Clavigero: History of Mexico, Trans. by Cullen, vol. I, p. 437.

[2] Davis: Spanish Conquest of New Mexico, p. 121.
Beverly: History of Virginia, p. 196.

[4] Lafitau: Moeurs des Sauvages Ameriquains, p. 61.

1, 2. Necklaces, from Lafitau.
3. From De Bry.
4, 5. From Mexican paintings.
6, 7, 8. From ancient sculptures.
9. Bracelet from a Peruvian grave.

ANCIENT PENDANTS.

lets of their curious wampompeag and mowhackees, which they put about their necks and loynes."[1]

Kalm says of the Indians of Lorette, near Quebec, Canada, that "round their necks they have a string of violet wampums, with little white wampums between them. These wampums are small, of the figure of oblong pearls, and made of the shells which the *English* call clams. At the end of the wampum strings many of the *Indians* wear a large French silver coin, with the king's effigy, on their breasts; others have a large shell on the breast, of a fine white colour, which they value very high, and is very dear; others, again, have no ornament at all round the neck."[2]

Pendants of metal and medals of European manufacture soon replaced in a great measure the primitive gorgets of shell; and early in the history of the tribes a heterogeneous collection of native beads, silver crosses, and traders' medals, ornamented the breasts of the simple savages.

In studying the habits and customs of our native peoples we look with a great deal of interest upon the earliest historical records, but generally find it prudent to remember that the "personal equation" was unusually large in those days, and in studying the illustrations given in the works of early writers we must make due allowance for the well-known tendency to exaggerate as well as for the fact that the artist has more frequently drawn from descriptions than from sketches made on the spot.

In Plate XLV two examples are given which seem to me to be trustworthy, as they agree with the descriptions given, and are in a general way characteristic of the American aborigines. Fig. 1 is reproduced, original size, from Plate 2, Volume II, of Lafitau, and shows a broad necklace ornamented with figures that resemble arrow heads. From this, by means of a cord, is suspended a large circular disk with concave front, which undoubtedly represents a shell gorget. In front of this and suspended from the necklace are two long strands of beads of various sizes and shapes, which give completeness to a very tasteful ornament. In the same plate is a pretty fair drawing of a native in costume. He is represented wearing a necklace similar to the one just described. An enlarged drawing of this ornament is given in Fig. 2. In Fig. 3 I reproduce a necklace from a plate in De Bry, which consists of a string of beads with two large disks that look more like metal than shell. A similar ornament is shown in Fig. 4, but with figured disks and secondary pendants. It is copied from the Codex of the Vatican. A common form of necklace among the ancient Aztecs consisted of small univalve shells suspended from a string. One of these, with other pendants, is shown in Fig. 5. It is also copied from the Vatican Codex. Others of a much more complex nature may be found

[1] Wood: New England Prospect, p. 74.

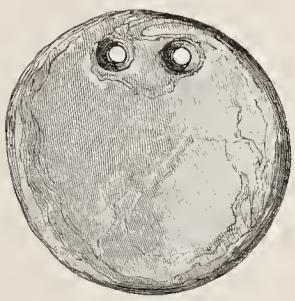
[2] Kalm: Travels in North America, 1772, vol. ii, p. 320.

in the same manuscript. Of even greater interest are the beautiful necklaces, with their pendants, found in the sculptures of Mexico and Yucatan.[1] Three of these are shown in Figs. 6, 7, and 8. One has a disk with human features engraved upon it, another has a cross with equal arms, and another a T-shaped cross. All have more or less auxiliary ornamentation. In Fig. 9 I present a bracelet of beads and pendants from Peru which illustrates one of the simpler uses of pendants. I have not learned whether the parts of this ornament were originally arranged as given in the cut or not; the original stringing may have been somewhat different. The beads are mostly of shell, and are of a variety of colors, white, red, yellow, and gray. The discoidal and cylindrical forms are both represented. The former range from one-eighth to three-eighths of an inch in diameter; the latter are one-eighth of an inch in thickness and three-eighths in length. The larger pendants, made of whitish shell, are carved to represent some life form, probably a bird; a large perforation near the upper end passes through the head, two oblique notches with deep lines at the sides, define the wings, and a series of notches at the wide end represent the tail. Two smaller pendants are still simpler in form, while another, with two nearly central perforations and notched edges, resembles a button.

Eastern forms.—The great number of elaborately carved and engraved gorgets of shell found among the antiquities of the Atlantic slope, all of which need careful descriptions, so overshadow the simple forms illustrated in Plate XLVI, that only a brief description of the latter need be given. Rudeness of workmanship and simplicity of form do not in any sense imply greater antiquity or a less advanced state of art. The simpler forms of plain pendants constituted the every-day jewelry of the average people and, like beads, were probably used freely by all who desired to do so. Many forms are found—circular, oval, rectangular, triangular, pear-shaped, and annular. The more ordinary forms are found in mounds and graves in all parts of the country; other forms are more restricted geographically, and probably exhibit features peculiar to the works of a particular clan, tribe, or group of tribes. Even these simple forms may have possessed some totemic or mystic significance; it is not impossible that the plainer disks may have had significant figures painted upon them. Such of the forms as are found to have definite geographic limits become of considerable interest to the archæologist. In method of manufacture they do not differ from the most ordinary implements or beads, the margins being trimmed, the surfaces polished and the perforations made in a precisely similar manner.

In Plate XLVI I present a number of plain circular disks. The larger specimens are often as much as four or even five inches in diameter and the smaller fraternize with beads, as I have shown in Plate XLV. Figs. 1 and 2 are from a mound at Paint Rock Ferry, Tenn. They are neat, moderately thin, concavo-convex disks, with smooth sur-

[1] *Vide* Kingsborough, Waldeck, Bancroft, &c.



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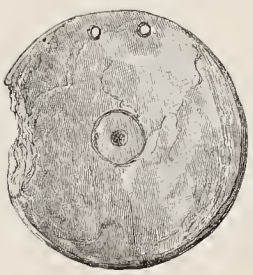

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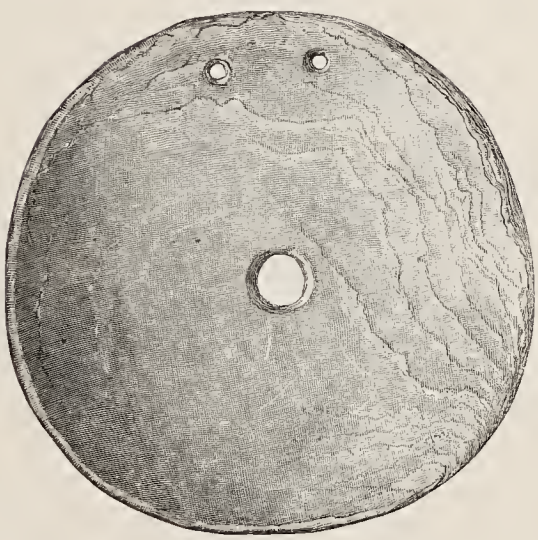

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4

PENDANT ORNAMENTS—EASTERN FORMS.

faces and rounded edges. The first has two perforations at the upper edge, while the other has similarly placed but much smaller ones, besides a small central perforation surrounded by an incised circle. The national collection contains similar specimens from most of the Atlantic States; they differ from the larger discoidal beads only in the method of perforation. A typical specimen of this class, four and a half inches in diameter, is shown in Fig. 3. It was associated with the remains of a number of children in a mound in Hardin County, Ohio. Disks of this class were usually suspended upon the breast with the concave side out. That many of the specimens described were suspended in this way is indicated by the character of the abrasion produced by the cords. On the concave side the cord of suspension has worn deep grooves between the perforations, and on the opposite or convex side similar grooves extend obliquely upward from the holes toward the margin of the disk, indicating the passage of the cord upward and outward around the neck of the wearer.

A large white disk, similar to the one just described, was obtained from a grave at Accotink, Va. It is five inches in diameter and has one central and three marginal perforations. It is made from a *Busycon perversum*, and is neatly shaped and well polished.

A fine specimen two inches in diameter was obtained from a mound on the French Broad River, Tenn., and, with many other similar specimens, is now in the national collection.

The central perforation is often very much enlarged. A number of specimens, recently sent to the National Museum, from a mound in Auglaize County, Ohio, show several stages of this enlargement. One specimen five inches across has a perforation nearly one inch in diameter, while in another the perforation is enlarged until the disk has become a ring. These gorgets show evidences of long use, the surfaces and edges being worn and the perforations much extended in the manner described above. They have been derived from the *Busycon perversum*.

In Fig. 4 I illustrate an annular gorget from a mound in Alexander County, Ill. It was found associated with ornaments of copper by the side of a human skull, and is hence supposed to have been an ear ornament. It is fragmentary and has suffered greatly from decay, the surface being mostly covered with a dark film of decomposed shell substance, which when broken away, exposes the chalky surface of the shell. These shell rings, so far as I can learn, have been found in the States of Ohio and Illinois only.

Rectangular pendants are much more rare. The national collection contains one rude specimen from Texas. It is about two inches wide by two and a half long, and is made from the base of some large dextral-whorled shell. A similar but much more finished specimen comes from Georgia, and is preserved in the New York Natural History Museum.

A large keystone-shaped gorget with rounded corners was obtained from an ancient burial place at Beverly, Canada. It is illustrated in Plate L, Fig. 1.

The small pendant shown in Fig. 5 is given by Schoolcraft in "Notes on the Iroquois." It represents rudely the human figure, and is ornamented with eight perpendicular and four or five transverse dots. It was found on the site of an old fort near Jamesville, N. Y. In the same work Mr. Schoolcraft illustrates another small pendant, which is reproduced in Fig. 6. The body is heart-shaped, the perforation being made through a rectangular projection at the upper end. It was found at Onondaga, N. Y.

The small pendant presented in Fig. 7 is from West Bloomfield, N. Y. It has been suspended by means of a shallow groove near the upper end. It is made from the basal point of a dextral-whorled shell.

The handsome little pendant shown in Fig. 8 was found with similar specimens in Monroe County, New York—probably on some ancient village site. It is well preserved and has been made from the columella of a dextral-whorled shell. An ornamental design, consisting of lines and dots, is engraved upon the face. A small, deeply countersunk perforation has been made near the upper end. These objects have apparently been strung with beads, as the perforations show evidence of such abrasion as beads would produce. Many of the New York specimens have a new look, and their form suggests the possibility of civilized influence. They are certainly more recent than the western and southern specimens.

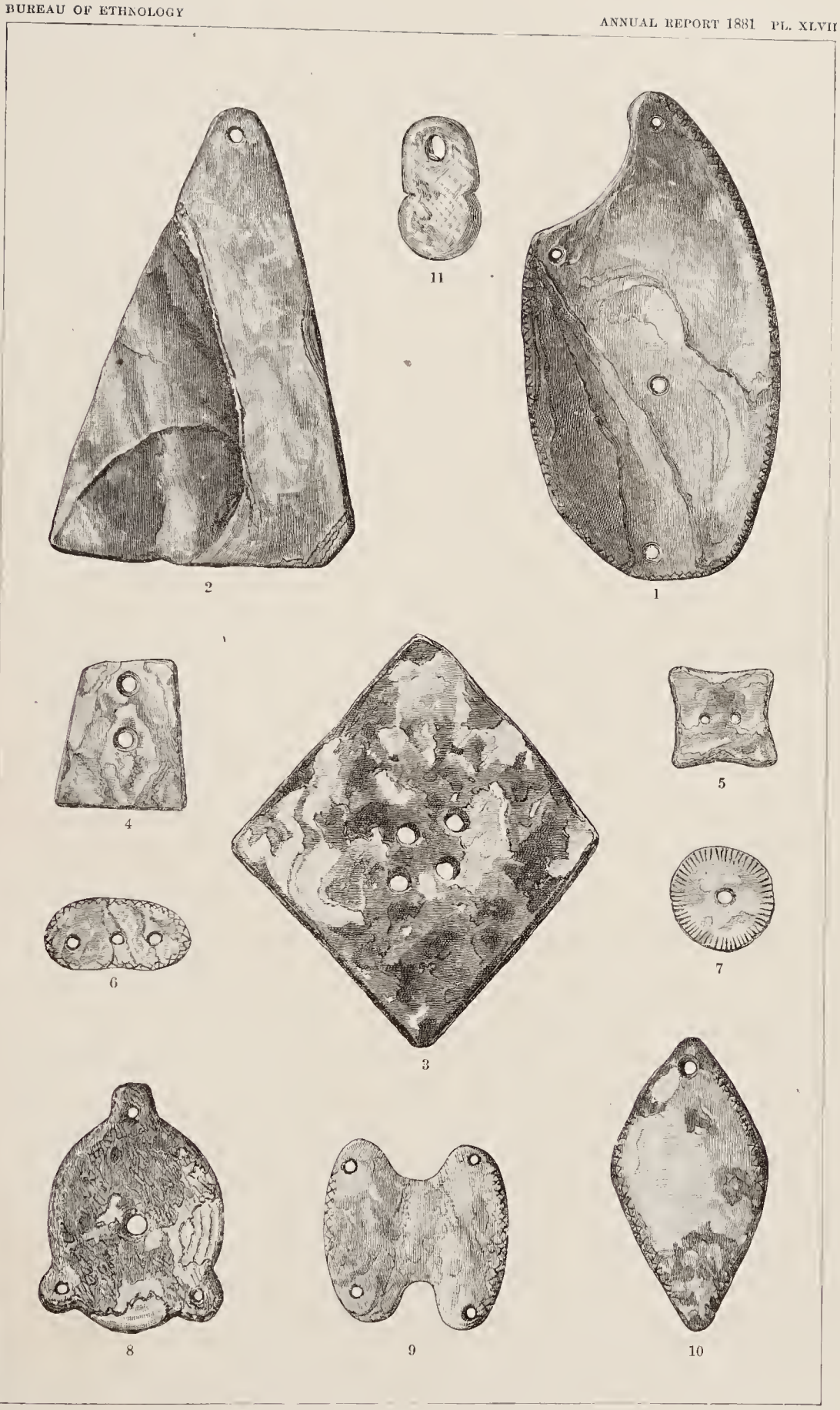
A small cylindrical pendant is illustrated in Fig. 9. A large, neat perforation has been made at the upper end, and the middle portion of the body is ornamented by a series of encircling grooves. This specimen has been made from a large *Unio* and was obtained from a mound in Union County, Ky.

Western forms.—In variety of form the plain pendants of the California coast excel all others. Specimens from the graves are generally well preserved, not having lost their original iridescence, although so much decayed as to suffer considerably from exfoliation.

As indicated by the present well preserved condition of these shell ornaments, they are probably not of very ancient date; indeed it is highly probable that many of them are post-Columbian.

Cabrillo visited the island of Santa Rosa in 1542 and found a numerous and thriving people. In 1816 only a small remnant of the inhabitants remained, and these were removed to the main-land by Catholic priests. Their destruction is attributed to both war and famine. The history of the other islands is doubtless somewhat similar.

Articles made from shell are found to resemble each other very closely, whether from the islands or the main-land. All probably belong to the same time, and although the peoples of the islands are said to have spoken a different language from those of the main-land, their arts were



PLAIN PENDANTS—PACIFIC COAST FORMS.

(1/1)

apparently pretty much the same. They do not differ, as far as works in shell are concerned, from the modern tribes of the main-land. There is also a noticeable resemblance between the art of the ancient California Islanders and that of the present inhabitants of the great Pacific archipelagoes.

The record of many of the specimens obtained from these islands seems to be very incomplete, scarcely more being known than the fact that they were obtained from the ancient graves. Since, however, they are almost exclusively ornaments belonging probably to a single period, detailed accounts of their methods of occurrence would not add greatly to their value.

In previous chapters vessels, hooks, and beads made of the *Haliotis* have been described, and the high estimation in which they are everywhere held briefly noted. The variety of ways in which this shell is utilized is indeed remarkable and the multitude of forms into which it is worked for ornament is a matter of surprise. All are neatly and effectively worked, and evince no little skill and taste on the part of the makers.

The *Haliotis* is not the only shell used, but it has no rival in point of beauty. Bivalve shells are utilized to a considerable extent, many tasteful things being made from the *Fissurella*, the *Mytilus*, the *Pachydesma*, and the *Pecten*. The perforations are generally neatly made and are more numerous than in similar eastern specimens; besides those for suspension there are frequently many others for the attachment of secondary pendants and for fastening to the costume. Many specimens are ornamented with edgings of notches and crossed lines but very few have been found on which significant characters have been engraved, and we look in vain for parallels to the curious designs characteristic of the gorgets of the mound-builders.

A glance at the numerous examples given in Plates XLVII, XLVIII, and XLIX will give a good idea of the multiplicity of forms into which these ornaments are wrought.

A rather remarkable group of pendants is represented by Fig. 1. They are characterized by a deep scallop at the left, with a long curved hook-like projection above. They take their form from the shape of the lip of the *Haliotis*, from which they are made—the hook being the upper point of the outer lip where it joins the body, and the scallop the line of the suture. The body of the ornament is formed from the lip of the shell. In size they vary to some extent with the shells from which they are derived. The body is at times quite oval and again slender and hooked like the blade of a sickle. The perforations are generally very numerous, a fact that indicates their use as central pieces for composite pendants. It is apparent that the wearers thought more of the exquisite coloring of these ornaments than of the outline or surface finish. This is only one of many instances that prove the innate and universal appreciation of beauty of color by savage peoples.

In Fig. 2 a fine example of the subtriangular or keystone-shaped pendants is presented. The edges are very neatly cut and the corners slightly rounded. The back is ground smooth, but on the front the original surface of the shell is preserved, the colors being extremely rich and brilliant. A single perforation has been drilled near the upper end. It is made from a *Haliotis rufescens*, and was obtained from the island of Santa Rosa.

The handsome specimen shown in Fig. 3 was obtained from a grave on the island of San Miguel. It has suffered much from decay. There are four neatly made perforations near the center. It has apparently been cut from the same shell as the preceding.

Fig. 4 is a small keystone-shaped specimen having two perforations.

Fig. 5 represents a small, delicate specimen of rectangular shape, having two minute perforations. This, as well as the preceding, was obtained from a grave on the island of San Miguel.

Fig. 6 illustrates a small oval, wafer-like specimen, the edges of which have been ornamented with a series of crossed lines. It has three neat perforations on the line of the longer axis. It is from the island of Santa Cruz.

Fig. 7 represents a small button-like disk with a central perforation; the margin is ornamented with a series of radiating lines. It was obtained from Santa Barbara.

A pendant of very peculiar form is shown in Fig. 8. The oval body has three marginal projections, all of which are perforated; there is also a perforation near the center. The surface retains a heavy coating of some dark substance, which gives the ornament much the appearance of corroded metal. It was obtained from San Miguel Island.

In a number of cases advantage has been taken of the natural perforations of the shell, both to give variety to the outline of small pendants and to save the labor of making artificial perforations. A very handsome little specimen is shown in Fig. 9. The two indentations above and below represent two of the natural perforations of the shell; artificial perforations are made in each of the four corners or wings. It was also obtained from the island of San Miguel.

Fig. 10 represents a leaf-shaped pendant with notched edges and a single perforation. It comes from the island of Santa Cruz.

The examples given are typical of the very large class of ornaments derived from the *Haliotidæ*. The striking specimens shown in Plate XLVIII are, with one exception, made from shells of this class. The two sickle-shaped pendants illustrated in Figs. 1 and 2 are made from the broadened inner lip of the *Haliotis californianus* (?). In one a single perforation has been made near the upper end; in the other there are two, one near each end. The faces have been neatly dressed and the corners ornamented with minute notches. They are from graves on Santa Cruz Island. Two exquisite specimens, also from Santa Cruz Island, are presented in Figs. 3 and 4. They have been cut from the body of a

1–7. Pendants made of the Haliotis. ($\frac{1}{4}$)

8. Pendant made of a Cyprea. ($\frac{1}{4}$)

PENDANT ORNAMENTS OF THE PACIFIC COAST.

Haliotis splendens (?), and finished with much care. Two perforations have been made near the upper margin, which is arched or curved while the lower is nearly straight. The edges are neatly notched. Although somewhat altered by exposure these objects are still very pretty.

A very neat, well preserved little pendant is shown in Fig. 5. The specimen presented in Fig. 6 is peculiar in having a series of five perforations, one near the middle and the others near the ends. The example given in Fig. 7 has two perforations, one at each end. These are all made from species of the *Haliotis*.

The specimen presented in Fig. 8 is made from the lip of a *Cyprea spadicea* with very little change except the carefully made perforation. It is from the island of San Miguel. The idea of beautifying ornaments made from the *Haliotis* and other shells by notching the edges may have been suggested by the natural notches characteristic of the *Cypreas*.

Figs. 1, 2, and 3, Plate XLIX, illustrate a group of small, delicate, ladle-shaped pendants. The perforation for suspension is at the upper end of the handle and the body has an oval or circular perforation, which is often so enlarged as to leave only a narrow ring, like the rim of an eyeglass. The specimen shown in Fig. 3 has two lobes, with a large perforation or opening in each. In one instance the handle is quite wide at the upper end and ornamented by two deep lateral notches. The edges of these specimens are nearly always adorned with notches or crossed lines. All are fashioned from the *Haliotis*, and although considerably stained are still well enough preserved to show the pearly lusters of that shell.

Circular and oval disks are also numerous and vary much in finish; some have a great number of perforations or indentations, and nearly all are neatly notched around the margins. Examples are given in Figs. 4 and 5.

The national collection contains a number of rings and pieces of rings made from the valves of a large clam, probably a *Pectunculus*, one example of which is shown in Fig. 6. The convex back of the shell is ground off until a marginal ring only remains. A perforation is made near the angle of the beak. The shell is from the California coast, but the rings were collected mostly if not entirely from Arizona and New Mexico. It is not impossible that the tribes of the interior procured these articles from white traders, as they are known to have secured other shell ornaments in this way.

The natives of the California coast were not slow in taking advantage of natural forms to aid their art or to save labor. The shells of the *Fissurellidæ* as well as of the *Haliotidæ* have been in great favor. They have been used as beads and pendants in their natural state or the natural perforations have been enlarged until only a ring has been left, or the margin and sides have been ground down until nothing of the original form or surface remained. Two of these forms are shown in Figs. 7

and 8. They are from graves on San Miguel Island, and are made from the *Lucupina crenulata;* others come from Santa Cruz Island, and probably also from the adjoining islands as well as from the main land. Rings are also made from other shells. Examples made from the *Acmæa mitra* and *Cyprea spadicea* are shown in Figs. 9, 10, and 11. They come from San Miguel.

PERFORATED PLATES.

We find that pendant gorgets grade imperceptibly into another group of objects, the use or significance of which have not be fully determined. These objects are more frequently made of stone or copper, but good examples in shell have been found. As a rule they take the form of thin oblong plates which exhibit great variety of outline. The perforations are peculiar, and have not been designed for ordinary suspension, but are placed near the middle of the specimen as if for fixing it to the person or costume by means of cords. Many theories have been advanced in attempting to determine their use. They have been classed as gorgets, badges of authority, shuttles, armor plates, wrist protectors, and as implements for sizing sinews and twisting cords.

Objects of this class in stone have been frequently illustrated and described. They are made of many varieties of stone, some of which seem to have been selected on account of their beauty. They have been neatly shaped and often well-polished. The edges are occasionally notched and the surfaces ornamented with patterns of incised lines. The perforations vary from one to four, the greater number of specimens, however, having only two. In the early days of mound exploration objects of this class were even greater enigmas, if possible, than they are to-day. Even the material of which a number of them were formed remained for a long time undetermined. Schoolcraft has published an illustration of a large specimen from the Grave Creek Mound, Va. This drawing is reproduced in Fig. 3, Plate L. The original was six inches long, one and three-tenths inches wide, and three-tenths of an inch in thickness. He expresses the opinion that it was one of those ancient badges of authority formerly in such general use among the Indians.[1]

Another specimen, very much like the last in size and shape, but made of shell, supposed at the time of discovery to be ivory, was found associated with human remains in the Grave Creek Mound. It is described by Mr. Tomlinson in the American Pioneer,[2] and the cut given in Plate L, Fig. 4, is copied from that work.

A remarkable specimen of this class is given in Fig. 5. It is made

[1] Schoolcraft, in Trans. Am. Eth. Soc., Vol. II, Plate 1.
[2] Tomlinson, in The American Pioneer, Vol. II, p. 200.

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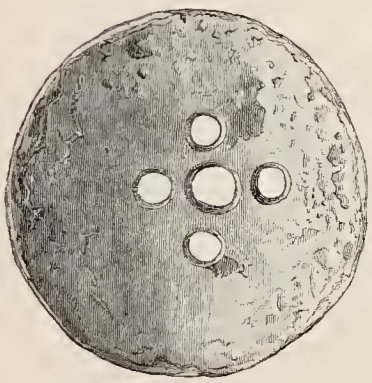
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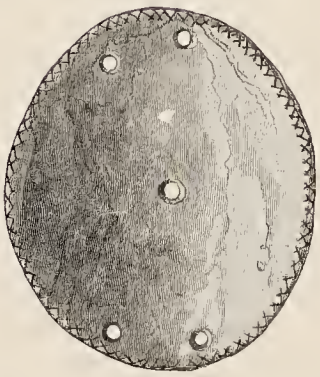
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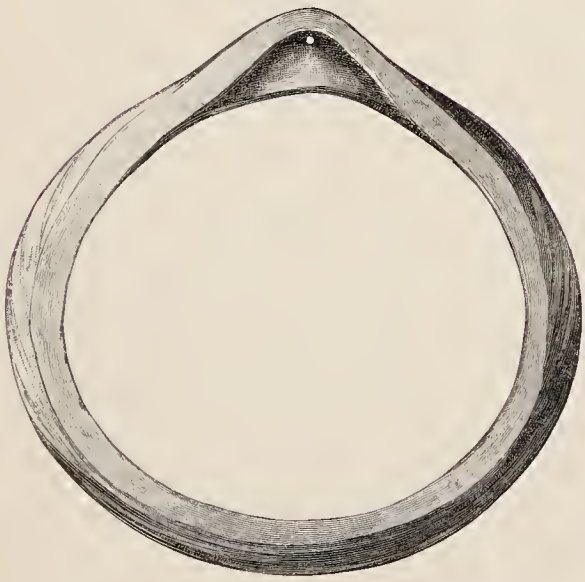
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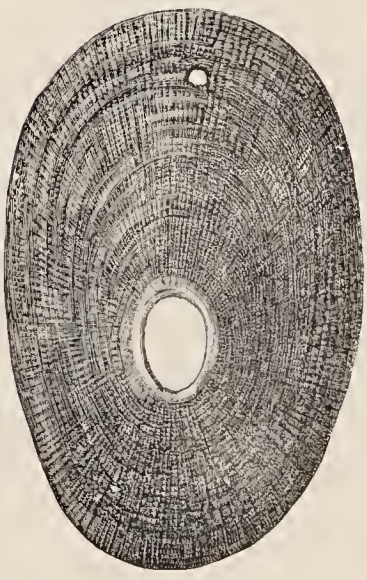
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PLAIN PENDANTS—PACIFIC COAST FORMS.

(1)

from the body of a large *Busycon perversum*, and is nine and a half inches long by three inches in width at the widest part. The concave surface has been highly polished, but is now somewhat roughened by weathering; the back has been slightly ground to take off the rougher ridges of growth; the edges are even and rounded and in many places quite thin. The peculiarity of its shape is such as to give it very much the appearance of the sole of a sandal. The perforations are three in number, one being near the middle and the others near the broader end, about one and a half inches apart; they are very neatly made and are slightly bi-conical and a little countersunk. There appears to be no evidence whatever of abrasion by use. It was found associated with human remains in a mound at Sharpsburg, Mercer County, Ohio. A similar specimen from the same locality is nearly nine inches in length, and lacks but a little of three and a half inches in width. As in the specimen illustrated, one perforation is placed near the middle and two others near the broader end. This specimen is highly polished on the broader part of the back, and is evenly smoothed on the concave side. It bears evidence of considerable use, and the two holes are much worn by a string or cord, which, passing from one hole to the other on the concave side of the plate, gradually worked a deep groove between them. On the back or convex side, the perforations show no evidence of wear. The central perforation is not worn on either side. The letter of Mr. Whitney, transmitting this relic to the National Museum, states that there were in the mound "about ten pairs of the shell sandals of different sizes, and made to fit the right and left feet." From the latter remark I should infer that some were made from dextral and others from sinistral shells; the two described are made from the *Busycon perversum*.

An extremely fine specimen, much like the preceding, was exhumed from an ancient mound in Hardin County, Ohio. It was found on the head of a skeleton which occupied a sitting posture near the center of the mound. It is nine inches in length by three and one-half inches in width, and in shape resembles the sole of a moccasin, being somewhat broader and less pointed than the specimen presented in Fig. 5. It had been placed upon the skull with the wider end toward the back, but whether laid there as a burial offering simply or as constituting a part of the head-dress of the dead savage we have no means of determining. The perforations are three in number, and are placed similarly to those in the specimen illustrated in Fig. 5. Two other skeletons had similar plates associated with them, which differed from the one described in size only, the smaller one being less than six inches in length. Lithographs of two of these specimens are given by Mr. Matson, in whose very excellent report they were first described.[1]

The gorget presented in Fig. 1 of this plate is copied from Schoolcraft.[2] It was taken, along with many other interesting relics, from

[1] Matson, in Ohio Centennial Report, p. 131.

[2] Schoolcraft: History of the Indian Tribes, &c., part I, plate XIX.

one of the ossuaries at Beverly, Canada West. It is formed from some large sea shell, and is three inches in width by three and three-fourths inches in length. Its perforations are four in number, and are so placed as to be conveniently used either for suspension by a single cord or for fixing firmly by means of two or more cords. It seems to hold a middle place between pendants proper and the pierced tablets under consideration.[1]

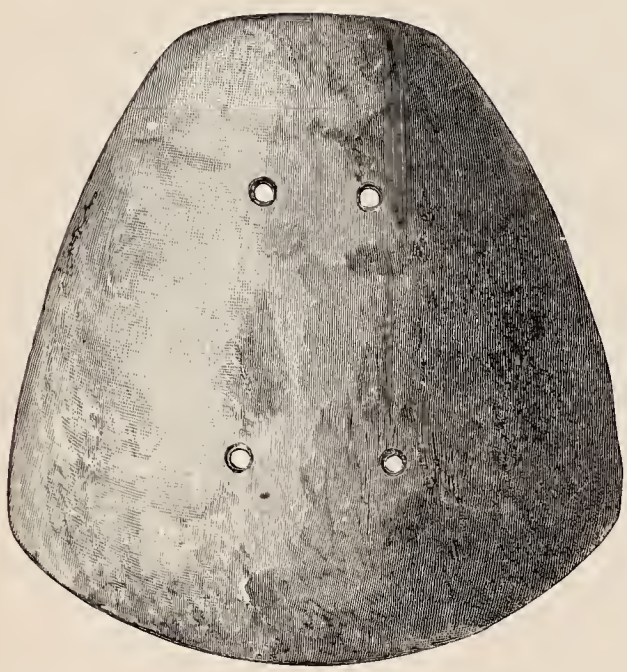
The unique specimen given in Fig. 2 is from Cedar Keys, Florida, but whether from a grave or a shell-heap I am at present unable to state. In its perforations, which are large and doubly conical, it resembles very closely the typical tablet of stone. The outline is peculiar; being rounded at the top, it grows broader toward the base like a celt, and terminates at the outer corners in well-rounded points, the edge between being ornamented with a series of notches or teeth. It has been cut from the wall of a *Busycon perversum*, and is sharply curved. The surface is roughened by time, but there is no evidence of wear by use either in the perforations or in the notches at the base.

In studying these remarkable specimens the fact that they so seldom show marks of use presents itself for explanation. Dr. Charles Rau, whose opinions in such matters are always worthy of consideration, remarks "that at first sight one might be inclined to consider them as objects of ornament, or as badges of distinction; but this view is not corroborated by the appearance of the perforations, which exhibit no trace of that peculiar abrasion produced by constant suspension. The classification of the tablets as 'gorgets,' therefore, appears to be erroneous."[2]

The same argument could, however, be brought with equal force against their use for any of the other purposes suggested. The perforations, if not used for suspension or attachment, would be subject to wear from any other use to which they could be put. But, as we have already seen, one of the specimens in shell exhibits well-defined evidence of wear, and that of such a character as to indicate the passage of a cord between the perforations in a position that would produce abrasion between the holes on the concave side of the plate, but would leave the back entirely unworn. This peculiar result could only be produced by attachment in a fixed position, concave side out, to some object perforated like the plate, the cord passing directly through both. The perforations of pendants necessarily show wear on both sides; a like result would follow from the use of these plates in any of the other ways mentioned. Those made of shell could not, on account of their warped

[1] The ossuaries here mentioned are in the township of Beverly, twenty miles from Dundas, at the head of Lake Ontario. They are situated in a primitive forest, and were discovered upwards of thirty years ago through the uprooting of a tree. Large numbers of skeletons had been deposited longitudinally in trenches, with many implements, utensils, and ornaments. Two brass kettles were found in one of the graves. (Schoolcraft: Red Races of America, p. 326.)

[2] Rau: Archæological Collection of the National Museum, p. 33.



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1. Ornament from Beverly, C. W.
2. Ornament from Florida.

3, 4. Objects from the Grave Creek Mound, Va.
5. Perforated plate from Ohio.

PERFORATED PLATES.

shape, be used for shuttles; besides, they show no evidence of marginal wear, such as would result from this use. The fact, too, that the material had to be brought from the distant sea-shore would seem to render it too rare and precious to be employed in the ordinary arts when wood, stone, and bone would serve the purpose as well. Owing to the carelessness or negligence of collectors we have but little information in regard to their relation to the human remains with which they were deposited. Such facts as we have, however, tend, I believe, to show that they were used for personal decoration. Again, the material of which they are formed is, on account of its beauty, especially adapted for ornament, and for this use it has been almost exclusively reserved by peoples as distant from the sea as were the ancient peoples of the Ohio Valley.

ENGRAVED GORGETS.

It has already been suggested that the simpler forms of pendants with plain surfaces may have had particular significance to their possessors, as insignia, amulets, or symbols, or that they may have received painted designs of such a character as to give significance to them. For ornament the natural or plainly polished surface of the shell possessed sufficient beauty to satisfy the most fastidious taste—a beauty that could hardly be enhanced by the addition of painted or incised figures. But we find that many of the larger gorgets obtained from the mounds and graves of a large district have designs of a most interesting nature engraved upon them, which are so remarkable in conception and execution as to command our admiration. Such is the character of these designs that we are at once impressed with the idea that they are not products of the idle fancy, neither is it possible that they had no higher office than the gratification of barbarian vanity. I have given much time to their examination, and, day by day, have become more strongly impressed with the belief that no single design is without its significance, and that their production was a serious art which dealt with matters closely interwoven with the history, mythology and polity of a people gradually developing a civilization of their own.

Although these objects were worn as personal ornaments they probably had specialized uses as insignia, amulets, or symbols.

As *insignia*, they were badges of office or distinction. The devices engraved upon them were derived from many sources and were probably sometimes supplemented by numeral records representing enemies killed, prisoners taken, or other deeds accomplished.

As *amulets*, they were invested with protective or remedial attributes and contained mystic devices derived from dreams, visions, and many other sources.

As *symbols* they possessed, in most cases, a religious character, and were generally used as *totems* of clans. They were inscribed with characters derived chiefly from mythologic sources. A few examples contain geometric designs which may have been *time-symbols*, or they may have indicated the order of ceremonial exercises.

That these objects should be classed under one of these heads and not as simple ornaments engraved with intricate designs for embellishment alone is apparent when we consider the serious character of the work, the great amount of labor and patience shown, the frequent recurrence of the same design, the wide distribution of particular forms, the preservation of the idea in all cases, no matter what shortcomings occur in execution or detail, and the apparent absence of all lines, dots, and figures not essential to the presentation of the conception.

In describing these gorgets I have arranged them in groups distinguished by the designs engraved upon them.[1] They are presented in the following order:

The Cross,
The Scalloped Disk,
The Bird,
The Spider,
The Serpent,
The Human Face,
The Human Figure: and to these I append The Frog,

which is found in Arizona only, and although carved in shell does not appear to have been used as a pendant, as no perforations are visible.

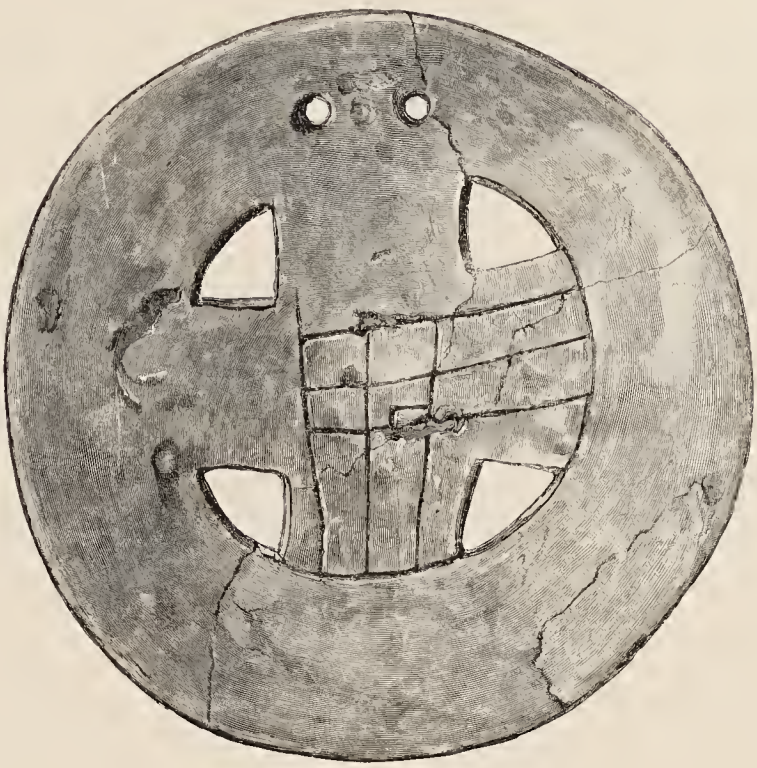
Within the United States ancient tablets containing engraved designs are apparently confined to the Atlantic slope, and are not found to any extent beyond the limits of the district occupied by the stone-grave peoples. Early explorers along the Atlantic coast mention the use of engraved gorgets by a number of tribes. Modern examples may be found occasionally among the Indians of the northwest coast as well as upon the islands of the central Pacific.

THE CROSS.

The discoverers and early explorers of the New World were filled with surprise when they beheld their own sacred emblem, the cross, mingling with the pagan devices of the western barbarian. Writers have speculated in vain—the mystery yet remains unsolved. Attempts to connect the use of the cross by prehistoric Americans with its use in the East have signally failed, and we are compelled to look on its occurrence here as one of those strange coincidences so often found in the practices of peoples totally foreign to each other.

If written history does not establish beyond a doubt the fact that the cross had a place in our aboriginal symbolism, we have but to turn

[1] The handsome illustrations presented in the accompanying plates were mostly drawn by Miss Kate C. Osgood, who has no superior in this class of work.



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1. From a mound, Union County, Ill. 2. From Charleston, Mo.

SHELL GORGETS—THE CROSS.

(4)

to the pages of the great archæologic record, where we find that it occupies a place in ancient American art so intimately interwoven with conceptions peculiar to the continent that it cannot be separated from them. It is found associated with other prehistoric remains throughout nearly the entire length and breadth of America.

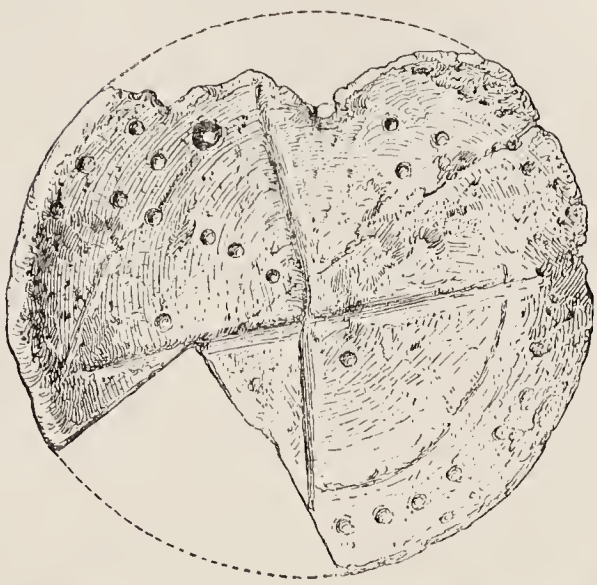
I have the pleasure of presenting a few new examples of this emblem, obtained from the district at one time occupied by the mound-builders. The examples are carved in shell or engraved upon disks of shell which have been employed as pendant gorgets. In the study of these particular relics, one important fact in recent history must be kept constantly in mind. The first explorers were accompanied by Christian zealots, who spared no effort to root out the native superstitions and introduce a foreign religion, of which the cross was the all-important symbol. This emblem was generally accepted by the savages as the only tangible feature of a new system of belief that was filled with subtleties too profound for their comprehension. As a result, the cross was at once introduced into the regalia of the natives; at first probably in a European form and material attached to a string of beads in precisely the manner that they had been accustomed to suspend their own trinkets and gorgets; but soon, no doubt, delineated or carved by their own hands upon tablets of stone and copper and shell, in the place of their own peculiar conceptions. From the time of La Salle down to the extinction of the savage in the middle Mississippi province, the cross was kept constantly before him, and its presence may thus be accounted for in such remains as post-date the advent of the whites. Year after year articles of European manufacture are being discovered in the most unexpected places, and we shall find it impossible to assign any single example of these crosses to a prehistoric period, with the assurance that our statements will not some day be challenged. It is certainly unfortunate that the American origin of any work of art resembling European forms must rest forever under a cloud of suspicion. As long as a doubt exists in regard to the origin of a relic, it is useless to employ it in a discussion where important deductions are to be made. At the same time it should not be forgotten that the cross was undoubtedly used as a symbol by the prehistoric nations of the South, and consequently that it was probably also known in the North. A great majority of the relics associated with it in ancient mounds and burial places are undoubtedly aboriginal. In the case of the shell gorgets, the tablets themselves belong to an American type, and are highly characteristic of the art of the Mississippi Valley. A majority of the designs engraved upon them are also characteristic of the same district.

We find at rare intervals designs that are characteristically foreign; these, whether Mexican or European, are objects of special interest and merit the closest possible examination. That the design under consideration, as well as every other engraved upon these tablets, is symbolic or otherwise significant, I do not for a moment doubt; but the

probabilities as to the European or American origin of the symbol of the cross found in this region are pretty evenly balanced. In its delineation there is certainly nothing to indicate its origin. By reference to Plate LIII it will be seen that in all the examples given it is a simple and symmetrical cross, which might be duplicated a thousand times in the religious art of any country. A study of the designs associated with the cross in these gorgets is instructive, but does not lead to any definite result. In one case the cross is inscribed upon the back of a great spider; in another it is surrounded by a rectangular framework of lines, looped at the corners, and guarded by four mysterious birds, while in others it is without attendant characters; but the workmanship is purely aboriginal. I have not seen a single example of engraving upon shell that suggested a foreign hand, or a design, with the exception of this one, that could claim a European derivation.

Some very ingenious theories have been elaborated in attempting to account for the presence of the cross among American symbols. Brinton believes that the great importance attached to the points of the compass—the four quarters of the heavens—by savage peoples has given rise to the sign of the cross. With others the cross is a phallic symbol, derived, by some obscure process of evolution, from the veneration accorded to the reciprocal principle in nature. It is also frequently associated with sun-worship, and is recognized as a symbol of the sun—the four arms being remaining rays left after a gradual process of elimination. Whatever is finally determined in reference to the origin of the cross as a religious symbol in America will probably result from the exhaustive study of the history, language, and art of the ancient peoples, combined with a thorough knowledge of the religious conceptions of modern tribes, and when these sources of information are all exhausted it is probable that the writer who asserts more than a probability will overreach his proofs.

Such delineations of the cross as we find embodied in ancient aboriginal art represent only the final stages of its evolution, and it is not to be expected that its origin can be traced through them. In one instance, however, a direct derivation from nature is suggested. The ancient Mexican pictographic manuscripts abound in representations of trees, conventionalized in such a manner as to resemble crosses; these apparently take an important part in the scenes depicted. By a comparison of these curious trees with the remarkable cross in the Palenque tablet, I have been led to the belief that they must have a common significance and origin. The analogies are indeed remarkable. The tree-cross in the paintings is often the central figure of a group in which priests offer sacrifice, or engage in some similar religious rite. The cross holds the same relation in the Palenque group. The branches of these cross-shaped trees terminate in clusters of symbolic fruit, and the arms of the cross are loaded down with symbols which, although highly conventionalized, have not yet entirely lost their vege-



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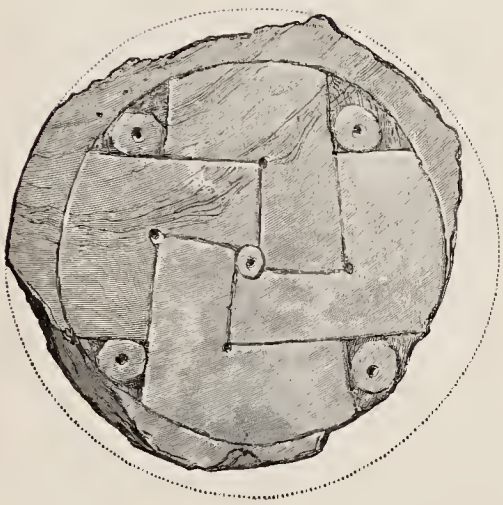

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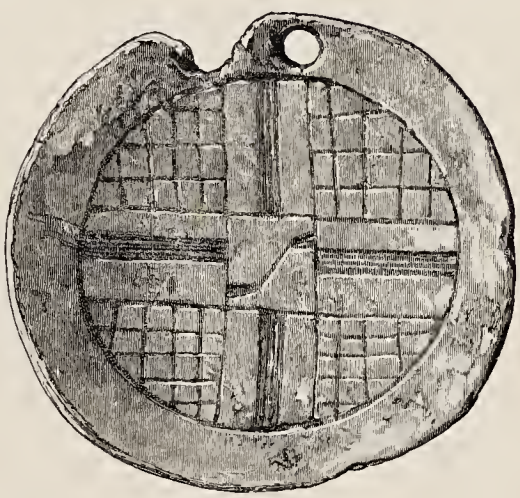

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1. Shell gorget, Fain's Island, Tenn.
2. Shell gorget, Lick Creek, Tenn.
3. Shell gorget, Liek Creek, Tenn.
4. Copper plate, Ohio.

THE CROSS OF THE MOUND BUILDERS.

table character. The most remarkable feature, however, is not that the crosses resemble each other in these respects, but that they perform like functions in giving support to a symbolic bird which is perched upon the summit. This bird appears to be the important feature of the group, and to it, or the deity which it represents, the homage or sacrifice is offered. These analogies go still farther; the bases of the cross in the tablet and of the crosses in the paintings are made to rest upon a highly conventionalized figure of some mythical creature. A consideration of these facts seems to me to lead to the conclusion that the myths represented in all of these groups are identical, and that the cross and cross-like trees have a common origin. Whether that origin is in the tree on the one hand or in a cross otherwise evolved on the other I shall not attempt to say.

The gorget presented in Fig. 1., Plate LI, belongs to the collection of Mr. F. M. Perrine, and was obtained from a mound in Union County, Ill. It is a little more than three inches in diameter and has been ground down to a uniform thickness of about one-twelfth of an inch. The surfaces are smooth and the margin carefully rounded and polished. Near the upper edge are two perforations for suspension. The cord used passed between the holes on the concave side, wearing a shallow groove. On the convex side, or back, the cord marks extend upward and outward, indicating the usual method of suspension about the neck. The cross which occupies the center of the concave face of the disk, is quite simple. It is partially inclosed on one side by a semicircular line, and at present has no other definition than that given by four triangular perforations which separate the arms. The face of the cross is ornamented with six carelessly drawn incised lines, which interlace in the center, as shown in the cut—three extending along the arm to the right and three passing down the lower arm to the inclosing line. I have not been able to learn anything of the character of the interments with which this specimen was associated.

Fig. 2 of the same plate represents a large shell cross, the encircling rim of which has been broken away. The perforations are still intact. The cross is quite plain. This specimen is very much decayed, and came to the National Museum inside of a skull obtained from a grave at Charleston, Mo. Beyond this there is no record of the specimen.

In Fig. 1, Plate LII, I present a large fragment of a circular shell ornament, on the convex surface of which a very curious ornamental design has been engraved. The design, inclosed by a circle, represents a cross such as would be formed by two rectangular tablets or slips, slit longitudinally and interlaced at right angles to each other. Between the arms of the cross in the spaces inclosed by the circular border line are four annular nodes, having small conical depressions in the center. These nodes have been relieved by cutting away portions of the shell around them. In the center of the cross is another small node or ring similarly relieved. The lines are neat and deeply incised.

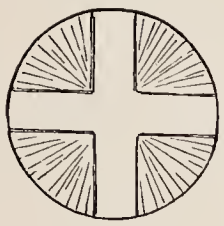
The edge of the shell has been broken away nearly all around. The accompanying cut represents the ornament natural size—one and a half inches in diameter and one-sixteenth of an inch in thickness. It was obtained from a mound on Fain's Island, Tennessee.

The small gorget presented in Fig. 2, Plate LII, is of inferior workmanship and the lines and dots seem to have a somewhat haphazard arrangement. The cross, which may or may not be significant, consists of two shallow irregular grooves which cross each other at right angles near the center of the disk and terminate near the border. There are indications of an irregular, somewhat broken, concentric line near the margin. A number of shallow conical pits have been drilled at rather irregular intervals over most of the surface. One pair of perforations seems to have been broken away and others drilled, one of the latter has also been broken out. A triangular fragment is lost from the lower margin of the disk. This specimen was obtained from a mound on Lick Creek, East Tennessee, by Mr. Dunning.

The gorget shown in Fig. 3 contains a typical example of the cross of the mound-builder. The cut was made from a pencil sketch and is probably not quite accurate in detail. The border of the disk is plain, with the exception of the usual perforations at the top. The cross is inclosed in a carelessly drawn circle, and the spaces between the arms, which in other crosses are entirely cut out, or are filled with rays or other figures, are here decorated with a pattern of crossed lines. The lines which define the arms of the cross intersect in the middle of the disk. The square figure thus produced in the center contains a device that is probably significant. A doubly-curved or S-shaped incised line, widened at the ends, extends obliquely across the square from the right upper to the left lower corner. This figure appears to be an elementary or unfinished form of the device found in the center of many of the more elaborate disks. Intersected by a similar line it would form a cross like that upon the back of one of the spiders shown in Plate LXI, or somewhat more evenly curved, it would resemble the involuted figure in the center of the circular disks given in Plate LIV. This specimen was obtained from a mound on Lick Creek, Tenn., and is now in the Peabody Museum.

In Fig. 4 a large copper disk from an Ohio mound is represented. The specimen is eight inches in diameter, is very thin, and has suffered greatly from corrosion. A symmetrical cross, the arms of which are five inches in length, has been cut out of the center. Two concentric lines have been impressed in the plate, one near the margin and the other touching the ends of the cross. It is now in the Natural History Museum at New York.

In Plate LIII I present a large number of crosses, most of which have been obtained from the mounds, or from ancient graves, within the district occupied by the mound-builders. Eight are engraved upon shell gorgets (illustrations of which are given in the accompanying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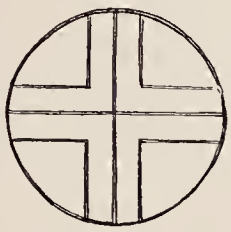
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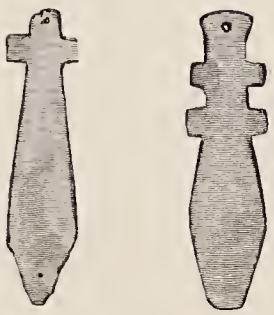
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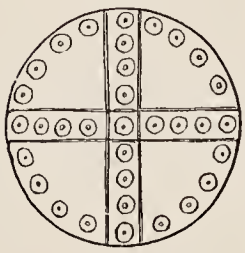
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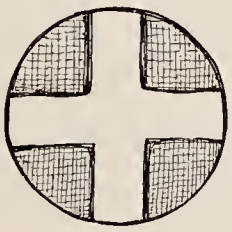
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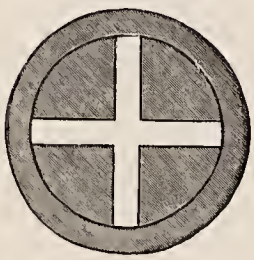
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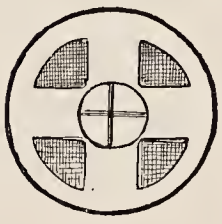
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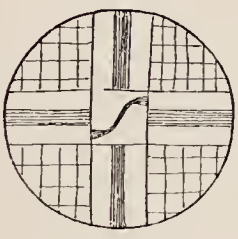
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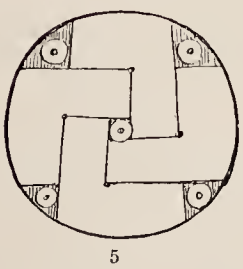
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11

THE CROSS.

plates), one is cut in stone, three are painted upon pottery, and four are executed in copper. With two exceptions they are inclosed in circles, and are hence symmetrical Greek crosses, the ends being rounded to conform to the circle; the remaining two (Figs. 14 and 15) represent forms of the Latin cross, and resemble the crosses attached to the rosaries of the Catholic priesthood. A silver cross similar to the last given was obtained from a mound in Ohio.

The plate itself is instructive, and may be presented without further remark.

SCALLOPED DISKS.

In making a hasty classification of the many engraved gorgets, I have found it convenient to place in one group a numerous and somewhat extraordinary class of designs which have been engraved upon scalloped disks. Like the cross, the symbol here represented is one that cannot with certainty be referred to an original. The general shape of the disks is such as to suggest to most minds a likeness to the sun, the scallops being suggestive of the rays. As this orb is known to be an object of first importance in the economy of life—the source of light and heat—it is naturally an object of veneration among many primitive peoples. It is well known that the barbarian tribes of Mexico and South America had well-developed systems of sun-worship, and that they employed symbols of many forms, some of which still retained a likeness to the original, while others had assumed the garb of animals or fanciful creatures. These facts being known, it seems natural that such a symbol as the one under consideration should be referred to the great original which it suggests.

The well-known fact that the district from which these gorgets come, was, at the time of discovery by the whites, inhabited by a race of sun-worshipers—the Natchez—gives to this assumption a shadow of confirmation. So far as I am aware, however, no one has ventured a positive opinion in regard to their significance, but such suggestions as have been made incline toward the view indicated above. I feel the great necessity of caution in such matters, and while combating the idea that the designs are ornamental or fanciful only, I am far from attributing to them any deeply mysterious significance. They may in some way or other indicate political or religious station, or they may even be cosmogenic, but the probabilities are much greater that they are time symbols. Before venturing further, however, it will be well to describe one of these disks, a typical example of which is presented in Plate LIV.

The specimen chosen as a type of these rosette-like disks was obtained from a mound near Nashville, Tenn., by Professor Powell. It was found near the head of a skeleton, which was much decayed, and had been so disturbed by recent movements of the soil as to render it difficult to determine its original position. The shell used is apparently a large specimen of the *Busycon perversum*, although the lines

of growth are not sufficiently well preserved to permit a positive determination of the species. The substance of the shell is well preserved; the surface was once highly polished, but is now pitted and discolored by age. The design is engraved on the concave surface as usual, and the lines are accurately drawn and clearly cut. The various concentric circles are drawn with geometric accuracy around a minute shallow pit as a center. These circles divide the surface into five parts—a small circle at the center surrounded by four zones of unequal width. The central circle is three-eighths of an inch in diameter, and is surrounded by a zone one-half an inch in width, which contains a rosette of three involuted lines; these begin on the circumference of the inner circle in three small equidistant perforations, and sweep outward to the second circle, making upwards of half a revolution. These lines are somewhat wider and more deeply engraved than the other lines of the design. In many specimens they are so deeply cut in the middle part of the curve as to penetrate the disk, producing crescent-shaped perforations. The second zone is one-fourth of an inch in width, and in this, as in all other specimens, is quite plain. The third zone is one-half an inch in width, and exhibits some very interesting features. Placed at almost equal intervals we find six circular figures, each of which incloses a circlet and a small central pit; the spaces between the circular figures are thickly dotted with minute conical pits, somewhat irregularly placed; the number of dots in each space varies from thirty-six to forty, which gives a total of about two hundred and thirty.

The outer zone is subdivided into thirteen compartments, in each of which a nearly circular figure or boss has been carved, the outer edges of which form the scalloped outline of the gorget. Two medium sized perforations for suspension have been made near the inner margin of one of the bosses next the dotted zone; these show slight indications of abrasion by the cord of suspension. These perforations, as well as the three near the center, have been bored mainly from the convex side of the disk. Whatever may be the meaning of this design, we cannot fail to recognize the important fact that it is significant—that an idea is expressed. Were the design ornamental, we should expect variation in the parts or details of different specimens resulting from difference of taste in the designers; if simply copied from an original example for sale or trade to the inhabitants we might expect a certain number of exact reproductions; but in such a case, when variations did occur, they would hardly be found to follow uniform or fixed lines; there would also be variation in the relation of the parts of the conception as well as in the number of particular parts; the zones would not follow each other in exactly the same order; particular figures would not be confined to particular zones; the rays of the volute would not always have a sinistral turn, or the form of the tablet be always circular and scalloped. It cannot be supposed that of the whole number of these objects at one time in use, more than a small number have been rescued from decay,

SCALLOPED SHELL DISK.

Nashville, Tenn.

(½)

and these have been obtained from widely scattered localities and doubtless represent centuries of time, yet no variants appear to indicate a leading up to or a divergence from the one particular type. A design of purely ornamental character, even if executed by the same hand, could not, in the nature of things, exhibit the uniformity in variation here shown. Fancy, unfettered by ideas of a fixed nature, such as those pertaining to religious or sociologic customs, would vary with the locality, the day, the year, or the life. I have examined upwards of thirty of these scalloped disks, the majority of which are made of shell. I shall not attempt to describe each specimen, but shall call attention to such important variations from the type as may be noticed.

In Fig. 1, Plate LV, we have a well-preserved disk which has four involute lines, the others having three only; these lines are deeply cut and, for about one-third of their length, penetrate the shell, producing four crescent-shaped perforations. The circles in the third or dotted zone are neatly made and evenly spaced, and inclose circlets and conical pits. The dots in the intervening spaces are closely and irregularly placed, and in number range from forty to forty-five, giving a total of about three hundred and forty. Other features are as usual. The specimen was obtained from a stone grave in Kane's Field, near Nashville, Tenn., and is now in the Peabody Museum.

It is possible that the specimen presented in Fig. 2, Plate LV, should not be placed in this group; but as there are many points of resemblance to the type, it may be described here. At first sight it appears that one of the outer zones is lacking, but it will be seen that through some unknown cause the two have been merged together, alternating bosses of the outer line being carried across both zones. The whole design has been carelessly laid out and rudely engraved. The lines of the involute are arranged in four groups of two each and occupy an unusually wide belt. There are near the margin two sets of perforations for suspension. The specimen was obtained from the Brakebill mound, near Knoxville, Tenn., and is in an advanced stage of decay.

In Plate LVI, Fig. 4, I present a small specimen, which has the appearance of being unfinished. The zones are all defined, but, with the exception of the outer, which has thirteen bosses, are quite plain. The lines are deeply but rudely cut. It was obtained from a stone grave at Oldtown, Tenn., and is now in the Peabody Museum.

Besides the type specimen already presented, there may be seen in the National Museum two very good examples, from a mound near Franklin, Tenn. The smaller is about three inches in diameter and is nearly circular; it has suffered much from decay, but nearly all the design can be made out. The lines of the involute penetrate the disk producing short crescent-shaped perforations; the circles in the dotted zone are seven in number and inclose the usual circlets and conical pits; the dots in the intervening spaces are too obscure to be counted. The spec-

imen has sixteen marginal scallops. The larger specimen is somewhat fragmentary, portions being broken away from opposite sides. It is nearly four and a half inches in diameter, and the design has been drawn and engraved with more than ordinary precision. The central circle incloses a perforated circlet, and the involute lines are long and shallow. The dotted zone has seven circles with inclosed circlets and pits. The outer zone contains fifteen oval figures.

Another example of these shell disks is illustrated by Professor Putnam, in the eleventh annual report of the Peabody Museum, page 310. It is said to have been found near Nashville, Tenn., although its pedigree is not well established. According to Professor Putnam, it is made from the shell of a *Busycon*, and is apparently in a very good state of preservation. It is about four inches in diameter and is inscribed with the usual design, a central circle and dot surrounded by a triple involute and three concentric zones. The narrow inner zone is plain, as usual; the middle dotted zone has six circles with central dots, the spaces between being closely dotted, and the outer zone contains thirteen of the oval figures, the outer edges of which form the scalloped margin of the disk. The perforations for suspension are placed as usual near the inner margin of the outer zone in the spaces between the oval figures.

A fine example of engraved disks has been figured by Dr. Joseph Jones, from whose work the illustrations given in Figs. 1 and 2, Plate LVI, have been taken. As his description is one of the first given and quite graphic, I make the following quotation: "In a carefully constructed stone sarcophagus, in which the face of the skeleton was looking toward the setting sun, a beautiful shell ornament was found resting upon the breast-bone of the skeleton. This shell ornament is 4.4 inches in diameter, and it is ornamented on its concave surface, with a small circle in the center, and four concentric bands, differently figured, in relief. The first band is filled by a triple volute; the second is plain, while the third is dotted, and has nine small round bosses carved at unequal distances upon it. The outer band is made up of fourteen small elliptical bosses, the outer edges of which give to the object a scalloped rim. This ornament on its concave figured surface had been covered with red paint, much of which was still visible. The convex smooth surface is highly polished and plain, with the exception of three concentric marks. The material out of which it is formed was evidently derived from a large flat sea-shell. * * * The form of the circles or '*suns*' carved upon the concave surface is similar to that of the paintings on the high rocky cliffs on the banks of the Cumberland and Harpeth. * * * This ornament, when found, lay upon the breast-bone, with the concave surface uppermost, as if it had been worn in this position suspended around the neck, as the two holes for the thong or string were in that portion of the border which pointed directly to the chin or central portion of the lower jaw of the skeleton. The marks of the thong by which it was suspended are manifest upon both the an-

1

2

1. From a mound near Nashville. ($\frac{1}{1}$)

2. From the Brakebill Mound. ($\frac{1}{1}$)

SHELL DISKS.

Tennessee.

terior and posterior surfaces, and in addition to this the paint is worn off from the circular space bounded below by the two holes."[1]

Fig. 2 represents the back or convex side of the disk, the long curved lines indicate the laminations of the shell, and the three narrow crescent-shaped figures near the center are perforations resulting from the deep engraving of the three lines of the volute on the concave side. The stone grave in which this ornament was found occupied the summit of a mound on the banks of the Cumberland River opposite Nashville, Tennessee. Professor Jones, also represents in the same work, page 109, a large fragment of a similar ornament which has apparently had seven circlets in the dotted zone and thirteen marginal bosses. This specimen, which is three and one-half inches in diameter, was exhumed by Dr. Grant, from "a small rock mound" near Pulaski, Giles County, Tennessee.

Prof. C. C. Jones describes a number of stone disks containing designs which evidently belong to the class under consideration. He inclines to the opinion that they were designed for some sacred office, and suggests that they were used as plates to offer food to the sun god. The specimen of which I present an outline in Fig. 3, Plate LVII, is figured by Mr. Jones, and his description is as follows: It is "circular in form, eleven inches and a half in diameter, an inch and a quarter in thickness, and weighing nearly seven pounds. It is made of a close-grained, sea-green slate, and bears upon its surface the stains of centuries. Between the rim, which is scalloped, and the central portion, are two circular depressed rings, running parallel with the circumference and incised to the depth of a tenth of an inch. This circular basin, nearly eight inches in diameter, is surrounded by a margin or rim a little less than two inches in width, traversed by the incised rings and beveled from the center toward the edge. The lower surface or bottom of the plate is flat, beveled upward, however, as it approaches the scalloped edge, which is not more than a quarter of an inch in thickness. * * * The use of these plates from the Etowah Valley may, we think, be conjectured with at least some degree of probability. It is not likely that they were employed for domestic or culinary purposes. Their weight, variety, the care evidenced in their construction, and the amount of time and labor necessarily expended in their manufacture, forbid the belief that they were intended as ordinary dishes from which the daily meal was to be eaten, and suggest the impression that they were designed to fulfill a more unusual and important office. The common vessels from which the natives of this region ate their prepared food were bowls and pans fashioned of wood and baked clay, calabashes, pieces of bark, and large shells. Flat platters, made of an admixture of clay and pounded shells, well kneaded and burnt, were ordinarily employed for baking corn-cakes and frying meat; but it does

[1] Jones: Aboriginal Remains of Tennessee, pp. 42-3.

not anywhere appear that ornamental stone plates were in general use."[1]

This specimen, or one identical with it, is in the possession of the Natural History Museum in New York. It was plowed up in 1859 on the lower terrace of a large mound near Cartersville, Ga.

Other specimens somewhat similar to the one described by Professor Jones have been obtained from the same region, two of which are now in the National Museum. One of these from a mound on the Warrior Riv. is made of gray slate, and is about eight inches in diameter. It is smooth, symmetrical, and doubly convex. There are three shallow, irregular lines near the border, and the periphery is ornamented with twenty-one scallops. Another specimen, a cut of which has already been published by Dr. Rau in "The Archæological Collection of the National Museum," p. 37, is illustrated in Plate LVII, Fig. 1. It is nearly one-half an inch in thickness, and about ten inches in diameter. A single incised line runs parallel with the circumference, which is ornamented with nine rather irregularly placed notches. The stone disk, of which an outline is given in Fig. 2, Plate LVII, was obtained from the Lick Creek mound, in East Tennessee. Its resemblance to the shell disks is so striking that it must be regarded as having a similar origin if not a similar use. The division into zones is the same as in the shell disks; the outer is divided into twelve lobes, and the cross in the center takes the place of the involute rosette with its central circle. The fact that this particular design is engraved on heavy plates of stone as well as upon shell gorgets is sufficient proof that its origin cannot be attributed to fancy alone.

I have seen at the National Museum a curious specimen of stone disk, which should be mentioned in this place, although there is not sufficient assurance of its genuineness to allow it undisputed claim to a place among antiquities. It is a perfectly circular, neatly-dressed sandstone disk, twelve inches in diameter and one-half an inch in thickness. Upon one face we see three marginal incised lines, as in the example just described, while on the other there is a well-engraved design which represents two entwined or rather knotted rattlesnakes. An outline of this curious figure is given in Plate LXVI. Within the circular space inclosed by the bodies of the serpents is a well-drawn hand in the palm of which is placed an open eye; this would probably have been omitted by the artist had he fully appreciated the skeptical tendencies of the modern archæologist. The margin of the plate is divided into seventeen sections by small semicircular indentations. This object is said to have been obtained from a mound near Carthage, Ala. The reverse is shown in Fig. 4, Plate LVII. A similar specimen from a mound near Lake Washington, Mississippi, is described by Mr. Anderson.[2]

The short time at my disposal has barely permitted me to collect the

[1] Jones: Antiquities of the Southern Indians, pp. 373-5.

[2] Anderson, in the Cincinnati Quarterly Journal of Science, October, 1875, p. 378.

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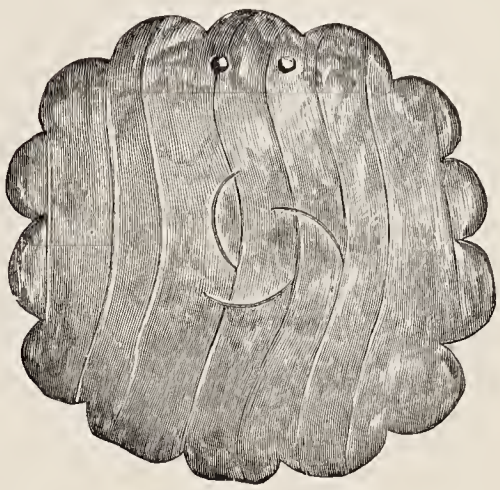

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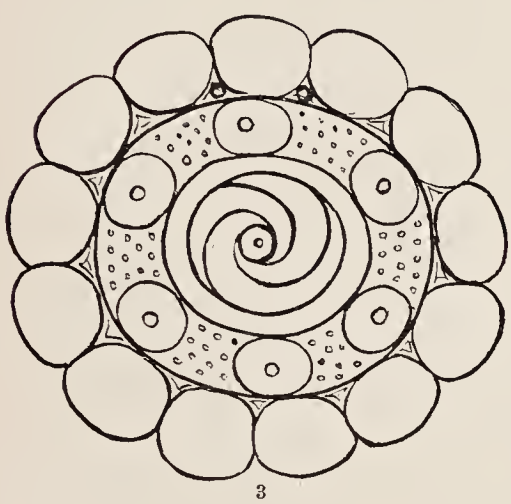

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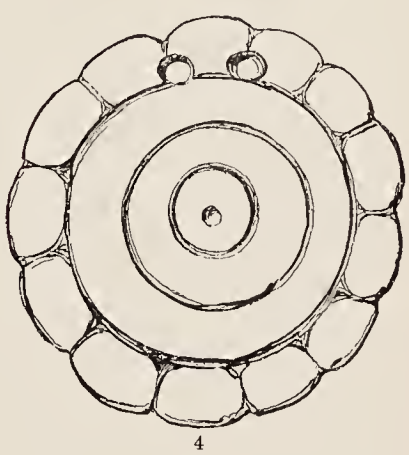

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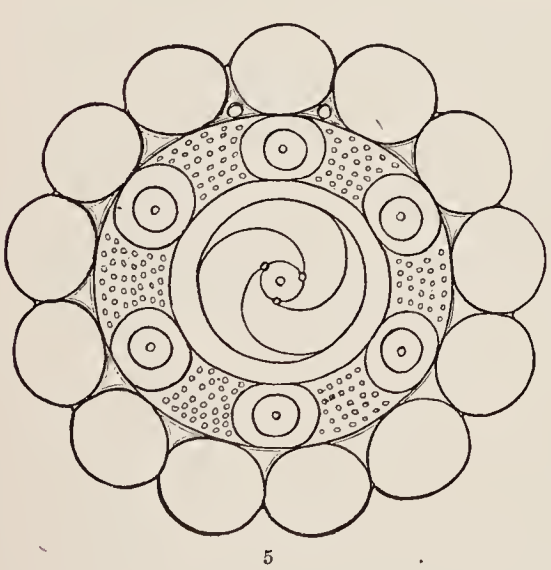

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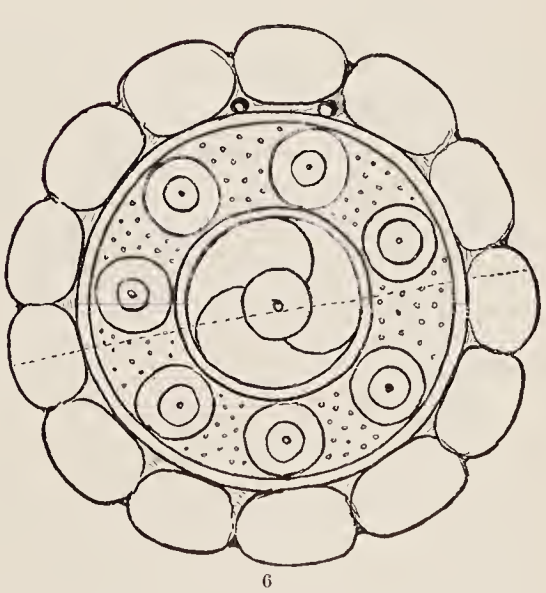

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1. Nashville, Tenn.
2. Nashville, Tenn. (reverse).
3. Nashville, Tenn.
4. Oldtown, Tenn.
5. Nashville, Tenn.
6. Pulaski, Tenn.

SCALLOPED SHELL DISKS.

facts, and I shall have to leave it to the future or to others to follow out fully the suggestions here presented. I had expected to find some uniformity in the numbers or ratios of the various zones, circles, and dots, and by that means possibly to have arrived at some conclusion as to their significance. I have already shown that certain elements of the design are fixed in position and number, while others vary, and the following table is presented that these facts may be made apparent. The list is quite incomplete.

It will be seen by reference to the fourth column that the involute symbol of the inner zone is, with one exception, divided into three parts. The second zone is not given in the table, as it is always plain. The third or dotted zone contains circlets which range from six to nine, while the dots, which have been counted in a few cases only, have a wide range, the total number in some cases reaching three hundred and forty. The bosses of the outer zone range from thirteen to eighteen. The examples in stone seem to have a different series of numbers.

The student will hardly fail to notice the resemblance of these disks to the calendars or time symbols of Mexico and other southern nations of antiquity. There is, however, no absolute identity with southern examples. The involute design in the center resembles the Aztec symbol of day, but is peculiar in its division into three parts, four being the number almost universally used. The only division into three that I have noticed occurs in the calendar of the Muyscas, in which three days constitute a week. The circlets and bosses of the outer zones gives them a pretty close resemblance to the month and year zones of the southern calendars.

My suggestion that these objects may be calendar disks will not seem unreasonable when it is remembered that time symbols do very often make their appearance during the early stages of barbarism. They are the result of attempts to fix accurately the divisions of time for the regulation of religious rites, and among the nations of the south constituted the great body of art. No well-developed calendar is known among the wild tribes of North America, the highest achievements in this line consisting of simple pictographic symbols of the years, but there is no reason why the mound-builders should not have achieved a pretty accurate division of time resembling, in its main features, the systems of their southern neighbors.

SHELL.

Illustrated in—	Collection.	Locality.	Divisions of involute.	Circlets in 2d zone.	Bosses in marginal zone.	Dots in 2d zone.	Peculiar features.
Pl. LIV.....	N. M., 32060...	Tenn ...	3	6	13	340 (?)	Three central perforations.
Pl. LV, 1.....	P. M., 15247...	..do.....	4	8	14	.....	
Pl. LVI, 1....	J. Jones	..do.....	3	9	14	.....	Three incisions.
Pl. LVI, 3....	P. M., 11801...	..do.....	3	6	13	.....	
Pl. LVI, 4....	P. M., 15969...	..do.....	3	Plain....	13	.....	Unfinished (?)
	P. M., 15896...	..do.....	3	8	17	.....	
	P. M.....	..do.....	3	6	16	.....	
	P. M., 15906...	..do.....	3	8	13	100 (?)	Two central perforations.
	P. M., 15835...	..do.....	3	6	14	250 (?)	
	P. M., 15916...	..do.....	3	6	18	.....	Three crescent perforations.
	N. M., 19976...	..do.....	3	7	16	.....	
	N. M., 19975...	..do.....	3	7	15	280 (?)	

STONE.

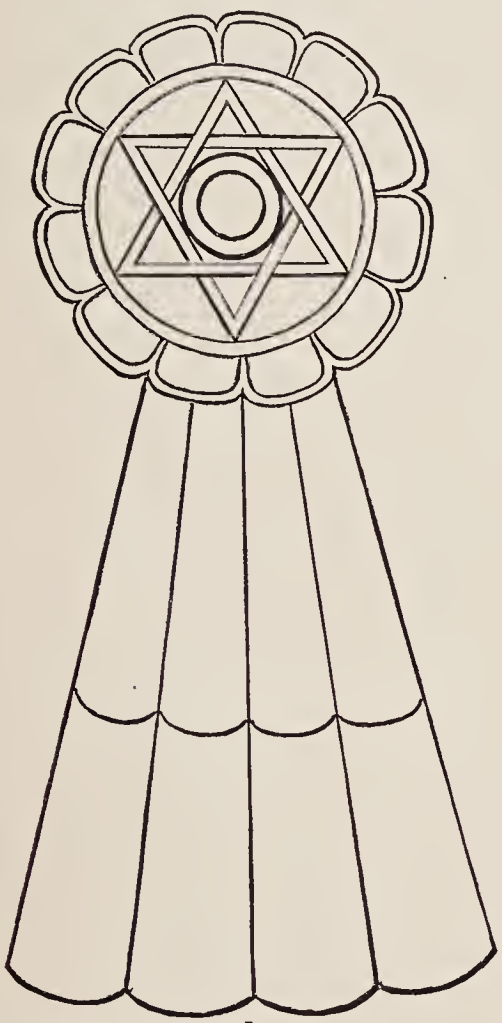
Pl. LVII, 1..	N. M., 9334 ...	Ga.....	.....	Plain....	9	.....	
Pl. LVII, 2..	P. M., 2962....	..do.....	.....	..do.....	12	.....	Cross in center.
Pl. LVII, 3..	N. Y. Nat. Hist. M.	..do.....	.....	..do.....	24	.....	
	N. M., 9332 ...	..do.....	.....	..do.....	21	.....	
Pl. LXVI ...	N. M.....	Ala.....	.....	..do.....	17	.....	Serpent, obverse.
	Anderson.....	Miss....	.....	..do.....	18	.....	Serpent, center.

N. M., National Museum. P. M., Peabody Museum.

THE BIRD.

With all peoples the bird has been a most important symbol. Possessing the mysterious power of flight, by which it could rise at pleasure into the realms of space, it naturally came to be associated with the phenomena of the sky—the wind, the storm, the lightning, and the thunder. In the fervid imagination of the red man it became the actual ruler of the elements, the guardian of the four quarters of the heavens. As a result the bird is embodied in the myths, and is a prominent figure in the philosophy of many savage tribes. The eagle, which is an important emblem with many civilized nations, is found to come much nearer the heart of the superstitious savage; its plumes are the badge of the successful warrior; its body a sacred offering to his deities, or an object of actual veneration. The swan, the heron, the woodpecker, the paroquet, the owl, and the dove were creatures of unusual consideration; their flight was noted as a matter of vital importance, as it could bode good or evil to the hunter or warrior who consulted it as an oracle.

The dove, with the Hurons, is thought to be the keeper of the souls



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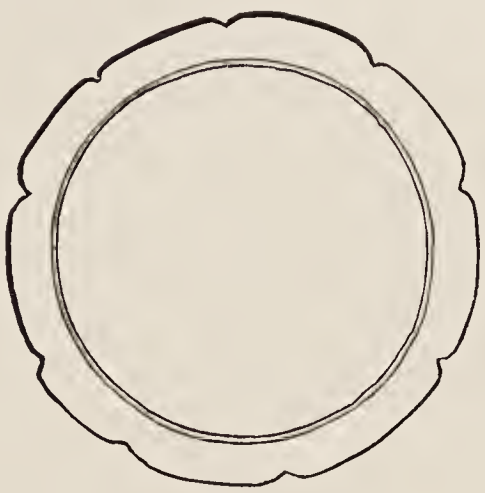

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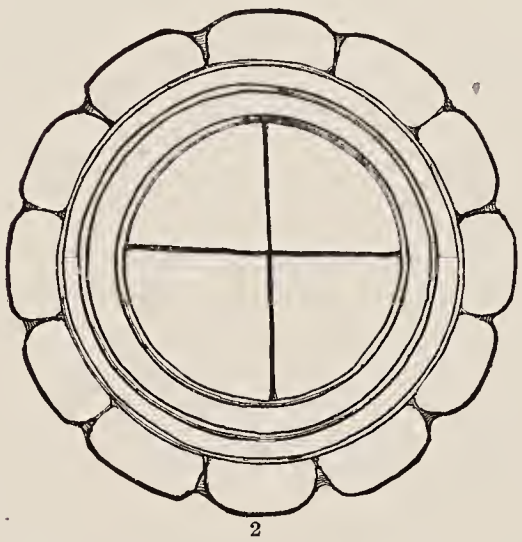

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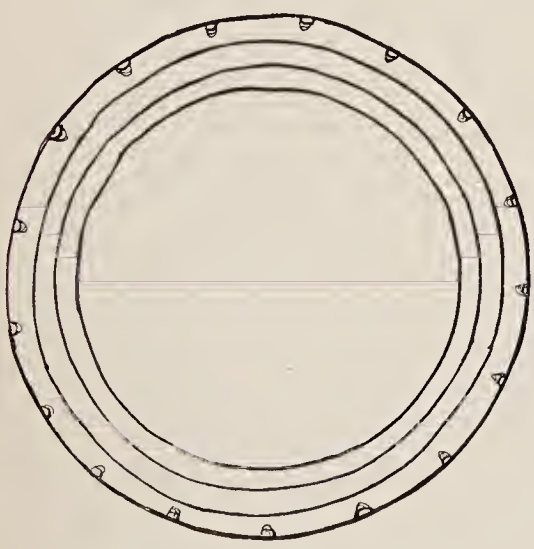

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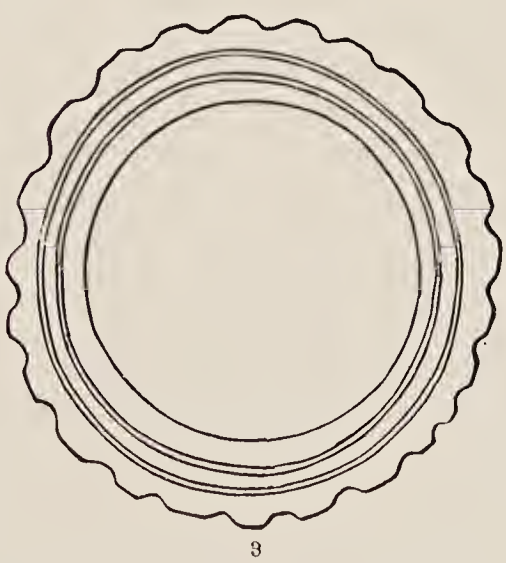

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1. Stone, Warrior River, Ala.
2. Stone, Lick Creek Mound, Tenn.
3. Stone, Etowah Valley, Ga.
4. Stone, Carthage, Ala.
5. Stone, Sun symbol, Uxmal.

SCALLOPED DISKS.

of the dead, and the Navajos are said to believe that four white swans dwell in the four quarters of the heavens and rule the winds.

The storm-bird of the Dakotas dwells in the upper air, beyond the range of human vision, carrying upon its back a lake of fresh water; when it winks its eyes there is lightning; when it flaps its wings we hear the thunder; and when it shakes out its plumage the rain descends. Myths like this abound in the lore of many peoples, and the story of the mysterious bird is interwoven with the traditions which tell of their origin. A creature which has sufficient power to guide and rule a race is constantly embodied in its songs, its art, and its philosophy. Thus highly regarded by the modern tribes, it must have been equally an object of consideration among prehistoric races. We know that the Natchez and the Creeks included the bird among their deities, and by the relics placed within his sepulchers we know that it held an important place in the esteem of the mound-builder.

Our prehistoric peoples seem to have taken special delight in carving its form in wood and stone, in modeling it in clay, in fashioning it in copper and gold, and in engraving it upon shell. One of the most interesting of all the specimens preserved to us is illustrated in Plate LVIII. The design with which this relic is embellished possesses no little artistic excellence, and doubtless embodies some one of the many charming myths of the heavens.

I am perfectly well aware that a scientific writer should guard against the tendency to indulge in flights of fancy, but as the myths of the American aborigines are highly poetical, and abound in lofty rhetorical figures, there can be no good reason why their graphic art should not echo some of these rhythmical passages. To the thoughtful mind it will be apparent that, although this design is not necessarily full of occult mysteries, every line has its purpose and every figure its significance. Yet of these very works one writer has ventured the opinion that "they do but express the individual fancy of those by whom they were made;" that they are even without "indications of any intelligent design or pictographic idea." I do not assume to interpret these designs; they are not to be interpreted. Besides, there is no advantage to be gained by an interpretation. We have hundreds of primitive myths within our easy reach that are as interesting and instructive as these could be. All I desire is to elevate these works from the category of trinkets to what I believe is their rightful place—the serious art of a people with great capacity for loftier works. What the gorgets themselves were, or of what particular value to their possessors, aside from simple ornament, must be, in a

measure, a matter of conjecture. They were hardly less than the totems of clans, the insignia of rulers, or the potent charms of a priesthood.

The gorget in question is unfortunately without a pedigree. It reached the National Museum through the agency of Mr. C. F. Williams, and is labeled "Mississippi." On it face, however, there is sufficient evidence to establish its aboriginal origin. The form of the object, the character of the design and the evident age of the specimen, all bespeak the mound-builder. It was in all probability obtained from one of the multitude of ancient sepulchers that abound in the State of Mississippi. The disk is four and a quarter inches in diameter, and is made from a large, heavy specimen of the *Busycon perversum*. It has been smoothly dressed on both sides, but is now considerably stained and pitted. The design has in this case been engraved upon the convex side, the concave surface being plain. The perforations are placed near the margin and are considerably worn by the cord of suspension. In the center is a nearly symmetrical cross of the Greek type inclosed in a circle one and one-fourth inches in diameter. The spaces between the arms are emblazoned with groups of radiating lines. Placed at regular intervals on the outside of the circle are twelve pointed pyramidal rays ornamented with transverse lines. The whole design presents a remarkable combination of the two symbols, the cross and the sun. Surrounding this interesting symbol is another of a somewhat mysterious nature. A square framework of four continuous parallel lines, symmetrically looped at the corners, incloses the central symbol, the inner line touching the tips of the pyramidal rays. Outside of this again are the four symbolic birds placed against the side of the square opposite the arms of the cross. These birds, or rather birds' heads, are carefully drawn after what, to the artist, must have been a well recognized model. The mouth is open and the mandibles long, slender, and straight. The eye is represented by a circlet which incloses a small conical pit intended to represent the iris, a striated and pointed crest springs from the back of the head and neck, and two lines extend from the eye, down the neck, to the base of the figure. In seeking an original for this bird we find that it has perhaps more points of resemblance to the ivory-billed woodpecker than to any other species. It is not impossible, however, that the heron or swan may have been intended. That some particular bird served as a model is attested by the fact that other specimens, from mounds in various parts of Tennessee, exhibit similar figures. I have been able to find six of these specimens, all of which vary to some extent from the type described, but only in detail, workmanship, or finish. The specimen presented in Fig. 2, Plate LIX, was obtained by Mr. Cross from a stone grave on Mr. Overton's farm near Nashville, Tenn. Professor Putnam, who secured it from Mr. Cross, has published a cut of it in the Eleventh Annual Report of the PeabodyMuseum. It is made from a large marine shell, probably a *Busycon*, and is represented natural size both by Mr. Putnam and myself.

SHELL GORGET—THE BIRD.

Mississippi.

(†)

The design is essentially the same as that shown in the type specimen, but is much more rudely executed. A circlet with a central pit takes the place of the cross and sun. The looped rectangular figure has but two lines and the birds' heads are not so full of character as those on the other specimens; they resemble the heads of chicks with a few pin-feathers sprouting from the back and top of the head rather than full-fledged birds. The design is engraved on the concave side. The perforations are much worn. This specimen is now in the Peabody Museum.

The same collection contains a large fragment of another small disk about two inches in diameter. The central part seems to be plain, but the looped figure, which has four lines, resembles very closely that engraved on the other plates. It is mentioned by Professor Putnam, on page 309 of the Eleventh Annual Report of the Peabody Museum. It is said to have been found on the surface in Humphrey County, Tennessee.

A much larger specimen, which resembles my type specimen very closely, is shown in Fig. 1, Plate LIX. It was obtained by Professor Putnam and Dr. Curtis from a stone grave on Mrs. Williams' farm, Cumberland River, Tennessee. It is nearly circular, and about two and a half inches in diameter. A small piece has been lost from the upper margin. It is neatly made and quite smooth, and the lines of the design are clearly and evenly engraved. The small cross in the center is inclosed by a plain narrow zone, and is defined by four triangular perforations between the arms. In this respect it resembles other shell crosses found within the Mississippi Valley. Surrounding the plain zone are eight pyramidal rays with cross-bars; in this feature, and in the drawing of the looped square and the birds' heads, there is but little variation from the type specimen. The surface upon which the engraving is made seems to be slightly convex.

Another specimen of this class was obtained from a stone grave near Gray's mound, at Oldtown, Tenn. It is shown in Fig. 3, Plate LIX. The design is very much like that of the type specimen, from which it differs in having four large perforations near the center. Although the engraved design which once occupied the central space is almost totally effaced, one or two of the tips of the pyramidal rays may be detected. It is probable that the four round perforations correspond to the four triangular ones by which the arms of the cross in the preceding example are defined. The perforations for suspension are near one margin, and seem to be very much worn by use. The whole object is fragile from decay. This specimen is also in the Peabody Museum.

One more very imperfect specimen obtained from a stone grave in the Cumberland Valley is nearly five inches in diameter and very irregular in outline. Barely enough of the engraved design remains to show that it belongs to the class under consideration.

It will be observed that the specimens of this class obtained from

Tennessee are confined to a limited area. It thus seems especially unfortunate that so little is known of the history of the type specimen given in Plate LVIII, as without assurance of the correctness of the statement that it is from Mississippi we cannot make use of it to show geographical distribution. In reference to this point, however, we have a few very interesting facts which make the occurrence of specimens in localities as widely separated as the "Cumberland River" and "Mississippi" seem inconsequential. I refer now to two specimens described by Dr. Abbott in "Primitive Industry." One of these is a remarkable slate knife, the striking features of which are a "series of etchings and deeply incised lines of perhaps no meaning. Taken in order, it will be noticed that at the back of the knife are four short lines at uniform distances apart, and a fifth near the end of the implement. Besides these are fifteen shorter parallel lines near the broader end of the knife and about the middle of the blade. A series of five zigzag lines are also cut on the opposite end of the blade. * * * More prominent than the numerous lines to which reference has been made, are the clearly defined, unmistakable birds' heads, placed midway between the two series of lines. * * * Did we not learn from the writings of Heckewelder, that the Lenapé had 'the turkey totem,' we might suppose that this drawing of such bird heads originated with the intrusive southern Shawnees, who, at one time, occupied lands in the Delaware Valley, and who are supposed by some writers to have been closely related to the earliest inhabitants of the Southern and Southwestern States. Inasmuch as we shall find that, not only on this slate knife, but upon a bone implement also, similar heads of birds are engraved, it is probable that the identity of the design is not a mere coincidence, but that it must be explained either in accordance with the statements of Heckewelder, or be considered as the work of southern Shawnees after their arrival in New Jersey. In the latter event, the theory that these disks were the work of a people different from and anterior to the Indians found in the Cumberland Valley at the time of the discovery of that region by the whites is, apparently, not sustained by the facts."[1]

A cut of the bone implement referred to above is reproduced from Dr. Abbott's work, in Plate LIX, Fig. 4. It has probably been made from a portion of a rib of some large mammal and is thought to be somewhat fragmentary. "The narrow portion has been cut or ground away to some extent, and the edges are quite smoothly polished. Near the end of this handle-like portion, there is a countersunk perforation, and upon the concave side of the wider part there are rudely outlined the heads of two birds."[2] These resemble somewhat closely the heads depicted on the other specimen described by Dr. Abbott. The specimens referred to are both from New Jersey, and are probably surface finds.

[1] Abbott: Primitive Industry, pp. 70, 72, and 73.
[2] *Ibid.*, p. 207.

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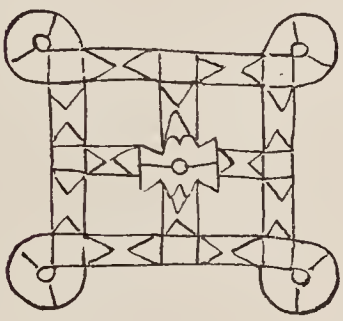

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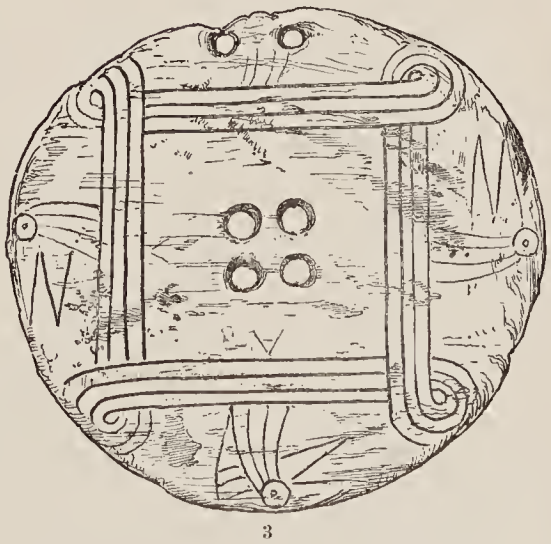


3

1. Shell gorget from stone grave, Tenn.
2. Shell gorget from stone grave, Tenn.
3. Shell gorget from stone grave, Tenn.
4. Bone implement, N. J.
5. Design from Aztec painting.

THE BIRD.

Although the heads represented on these specimens do certainly in some respects suggest that of the turkey, the characters are not sufficiently pronounced to make it impossible that some other bird was intended, so that the original in the mind of the ancient artist may have been the same as that from which the examples on shell were drawn.

In comparing the northern examples with those of Tennessee I observe another feature that is more conclusive as to the identity of origin than the rather obscure resemblance of the birds' heads delineated. I have not had the opportunity of examining the specimen illustrated in Fig. 4; but in the cut given by Dr. Abbott a rather indefinite figure can be traced which has a striking resemblance to the looped rectangle characteristic of the designs on shell. This resemblance could hardly be owing to accident, and if the peculiar figure mentioned is actually found in conjunction with the birds' heads upon the New Jersey specimen, it will certainly be safe to conclude that the bone, stone, and shell objects belonged to the same people, and that they constituted the totems of the same clan, or were the insignia of corresponding offices or orders.[1]

As bearing upon the question of the species of bird represented in the preceding specimens, I present in Plate LX an illustration published by Dr. Rau in the Smithsonian Report for 1877. This remarkable ornament (represented in Fig. 3) was obtained from a mound in Manatee County, Florida. It is a thin blade of gold, pointed at one end and terminating at the other in a highly conventionalized representation of a bird's head, the general characteristics of which are much like those of the examples engraved upon shell. The crest is especially characteristic, and, as pointed out by Dr. Rau, suggests a prototype in the ivory-billed woodpecker, an inhabitant of the Gulf States.

The significance of the looped figure which forms so prominent a feature in the designs in question has not been determined. I would offer the suggestion, however, that, from the manner of its occurrence, it may represent an inclosure, a limit, or boundary. It may be well to point out the fact that a similar looped rectangle occurs several times in the ancient Mexican manuscripts. One example, from the Vienna Codex,[2] is presented in Fig. 5, Plate LIX. It is not a little remarkable that a cross occupies the inclosed area in all these examples.

I shall close this very hasty review of the bird in the art of the Mound Builders by presenting the remarkable example of shell carving shown in Fig. 1, Plate LX. Like so many of the National Museum specimens, it is practically without a record—a stray. It is labeled "B. Pybas, Tuscumbia, Ala." It is old and fragmentary, the shell substance being, however, quite well preserved. It is the right-hand half of a

[1] Since this paragraph has been in type I have seen the specimen, and find that the looped figure is clearly defined.

[2] Kingsborough: vol. II, Plate 20.

gorget which represents an eagle's head in profile. The skill of the ancient artist is shown to great advantage; nothing can be found, even in the most elaborately carved pipes, equal to the treatment of this remarkable head. To overcome the difficulty of cutting the flinty and massive shell was no small triumph for a people still in the stone age. To conceive and execute such a graphic work is a still more marvelous achievement.[1] The lines of the mandibles and protruding tongue are strongly and correctly drawn. The eye and the markings of the head are executed in smooth, deeply incised lines, and are conventionalized in a manner peculiar to the American aborigines.

THE SPIDER.

Among insects the spider is perhaps best calculated to attract the attention of the savage. The tarantula is in many respects a very extraordinary creature, and is endowed with powers of the most deadly nature, which naturally places it along with the rattlesnake in the category of creatures possessing supernatural attributes. Its curiously constructed house with the hinged door and smoothly plastered chamber must ever elicit the admiration of the beholder. But the spider, which spins a web and projects in mid-air a gossamer structure of marvelous symmetry and beauty, and builds an ambush from which to spring upon his prey, was probably one of the first instructors of adolescent man, and must have seemed to him a very deity. It is not strange, therefore, that the spider appears in the myths of the savages. With the great Shoshone family, according to Professor Powell, the spider was the first weaver, and taught that important art to the fathers. The Cherokees, in their legend of the origin of fire, "represent a portion of it as having been brought with them and sacredly guarded. Others say that after crossing wide waters they sent back for it to the Man of Fire from whom a little was conveyed over by a spider in his web."[2]

The spider occurs but rarely in aboriginal American art, occasionally it seems, however, to have reached the dignity of religious consideration and to have been adopted as a totemic device. Had a single example only been found we would not be warranted in giving it a place among religious symbols. Four examples have come to my notice; these are all engraved on shell gorgets and are illustrated in Plate LX. Two are from Illinois, one from Missouri, and the other from Tennessee.[3] The example shown in Fig. 1 was obtained by Mr. Croswell from a mound near New Madrid, Mo. It is described as a circular ornament,

[1] Let any one who thinks lightly of such a work undertake, without machinery or well-adapted appliances, to cut a groove or notch even, in a moderately compact specimen of *Busycon*, and he will probably increase his good opinion of the skill and patience of the ancient workman if he does nothing else.

[2] E. G. Squier: Serpent Symbol, page 69, quoting MSS. of J. H. Payne.

[3] I am very much indebted to Prof. F. F. Hilder, of Saint Louis, for photographs of three of these specimens as well as for much information in regard to their history.

1

3

2

1. Fragment of shell gorget, Alabama. ($\frac{1}{1}$)
2. Gold ornament, Florida. ($\frac{1}{2}$)
3. Head of ivory-billed woodpecker.

THE BIRD.

three inches in diameter, that had, apparently, been cut from a *Busycon*. Mr. Crosswell says that "the convex face was entirely plain, but the concave side bears the figure of a tarantula, or large spider, very skillfully engraved, the body being formed by a circle inclosing a cross, showing beyond doubt its sacred and symbolic character. This ornament, when found, lay on the breast-bone of a skeleton, with the concave or ornamented side uppermost. Two holes in the upper part were evidently intended for the thong or string by which it had been suspended from the neck. A circumstance that renders this relic still more interesting is the fact that two other shell ornaments, bearing precisely similar devices, have recently been found in Illinois within seven miles of this city, thus proving that the figures were not a mere fanciful invention, but had some symbolic meaning."[1]

The disk thus briefly described by Mr. Crosswell is so much like the example shown in Fig. 3 that I shall not describe it further, but shall refer to its peculiarities in the descriptions of others that follow.

The handsome gorget illustrated in Fig. 3 was obtained from a mound in Saint Clair County, Illinois, seven miles from the city of Saint Louis. It was found upon the breast of a skeleton, and was very much discolored and quite fragile from decay, but no part of the design, which is engraved upon the concave side, has been obliterated. Near the margin and parallel with it three lines have been engraved. The spider is drawn with considerable fidelity to nature and covers nearly the entire disk, the legs, mandibles, and abdomen reaching to the outer marginal line. As in the specimen described above, the thorax is placed in the center of the disk, and is represented by a circle; within this a cross has been engraved, the ends of which have been enlarged on one side, producing a form much used in heraldry, but one very rarely met with in aboriginal American art. The head is somewhat heart-shaped and is armed with palpi and mandibles, the latter being ornamented with a zigzag line and prolonged to the marginal lines of the disk. The eyes are represented by two small circles with central dots. The legs are correctly placed in four pairs upon the thorax, and are very graphically drawn. The abdomen is large and heart-shaped, and is ornamented with a number of lines and dots, which represent the natural markings of the spider. The perforations for suspension are placed near the posterior extremity of the abdomen. It will be observed that this is also the case with the three other specimens. Having described this specimen somewhat carefully, it will be unnecessary to give a detailed description of the very similar specimen shown in Fig. 2. The latter was found in a stone grave in Saint Clair County, Illinois, and does not differ in any essential feature from either of the other specimens, one of which was found near by, and the other about one hundred miles farther south.

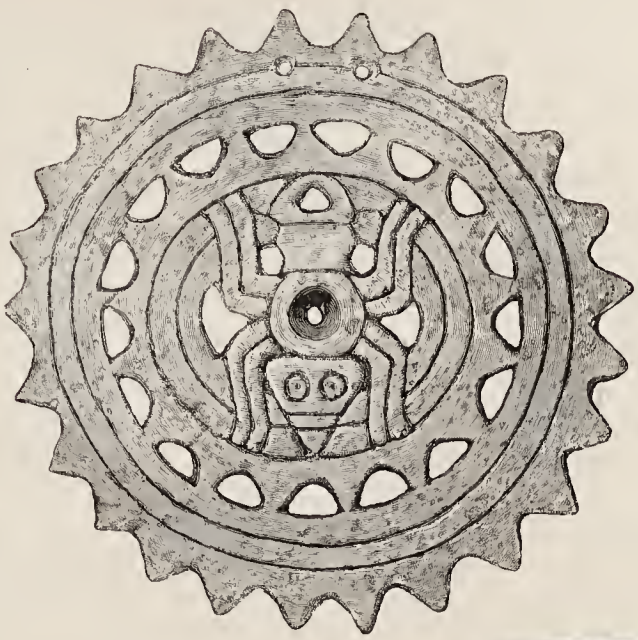
In reference to the cross it has been suggested that it may have been

[1] Croswell, in Transactions Academy of Science of Saint Louis, vol. III, p. 537.

derived from the well-defined cross found upon the backs of some species of the genus *Atta*, but there appears to be good reason for believing otherwise. The cross here shown has a very highly conventionalized character, quite out of keeping with the realistic drawing of the insect, and, what is still more decisive, it is identical with forms found upon many other objects. The conclusion is that the cross here, as elsewhere, has a purely symbolic character. Spider gorgets are also mentioned by A. J. Conant in the Kansas City Review, Vol. I, page 400, and in his work on the Commonwealth of Missouri, page 96, but no details are given. It is probable that the objects referred to by Mr. Conant are the same as those more definitely placed by Prof. Hilder.

The specimen shown in Fig. 4 was obtained from a mound on Fain's Island, Tennessee. The disk is somewhat more convex on the front than is indicated in the engraving. It is two and a half inches in diameter, and is quite thin and fragile, although the surface has not suffered much from decay. The margin is ornamented with twenty-four very neatly made notches or scallops. Immediately inside the border on the convex side are two incised circles, on the outer of which two small perforations for suspension have been made; inside of these, and less than half an inch from the margin, is a circle of seventeen sub-triangular perforations, the inner angle of each being much rounded. Inside of this again is another incised circle, about one and one-fourth inches in diameter, which incloses the highly conventionalized figure of an insect resembling a spider. In a general way—in the number and arrangement of the parts—this figure corresponds pretty closely to the very realistic spiders of the three other disks; in detail however, it is quite unlike them. It is much more highly conventionalized—the natural markings of the body being nearly all omitted, and the legs being without joints and square at the tips. The cross does not appear on the body, but its place is taken by a large conical perforation, made entirely from the convex side. The central segment of the body is round, as in the other cases; to this the four pairs of legs are attached. Without reference to the other specimens, it would be difficult to distinguish the anterior from the posterior extremity, and even with this aid we cannot be quite certain. The larger extremity is somewhat triangular in outline and is ornamented with two cross lines and two eyes. Were it not for the fact that these eyes resemble so closely those found in the other specimens I should call this the posterior extremity, as the opposite end terminates in a pair of well-shaped mandibles, the triangular space between them being cut quite through the disk. The section of the body between this and the central circle also resembles the head, which suggests the conclusion either that the eyes are misplaced or that, as drawn, they are only intended to represent the bright spots of the insect's body.

The rarity of these spider gorgets makes it seem rather remarkable that specimens should occur in localities so widely separated as Fain's



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1. From a mound, Missouri.
2. From a stone-grave, Illinois.
3. From a mound, Illinois.
4. From a mound, Tennessee.

SPIDER GORGETS.

(1)

Island and Saint Louis, but the races inhabiting this entire region, are known to have had many arts in common, and besides this it is not impossible that the same tribe or clan may, at different times, have occupied both of these localities. The marked differences in the design and execution of these specimens, however, indicate a pretty wide distinction in the time or art of the makers.

THE SERPENT.

The serpent has had a fascination for primitive man hardly surpassed by its reputed power over the animals on which it preys. In the minds of nearly all savages it has been associated with the deepest mysteries and the most potent powers of nature. No other creature has figured so prominently in the religious systems of the world, few of which are free from it; and as art, in a great measure, owes its existence to an attempt to represent or embellish objects which are supposed to be the incarnations of spirits, the serpent is an important element in all art. Wherever the children of nature have wandered its image may be found engraved upon the rocks, or painted or sculptured upon monuments of their own construction. It is found in a thousand forms; beginning with those so realistic that the species can be determined, we may pass down through innumerable stages of variation until all semblance of nature is lost. Beyond this it becomes embodied in the conventional forms of art or looks back from its obscure place in an alphabet through a perspective of metamorphism as marvelous as that visible to the creature itself could it view the course of its evolution from the elements of nature.

So well is the serpent known as a religious symbol among the American peoples that it seems hardly necessary to present examples of the curiously interesting myths relating to it. We are not surprised to find the bird, the wolf, or the bear placed among representatives of the "Great Spirit," and hence to find them embodied in art; but it would be a matter of surprise if the serpent were ever absent.

With the mound-builders it seems to have been of as much importance as to other divisions of the red race, ancient or modern. It is of very frequent occurrence among the designs engraved upon gorgets of shell, a multitude of which have been thus dedicated to the serpent-god.

It is a well-known fact that the rattlesnake is the variety almost universally represented, and we find that these engravings on shell present no exception to this rule. From a very early date in mound exploration these gorgets have been brought to light, but the coiled serpent engraved upon their concave surfaces is so highly conventionalized that it was not at once recognized. Professor Wyman appears to have been the first to point out the fact that the rattlesnake was represented; others have since made brief allusion to this fact. Two examples only have been illustrated; one by Professor Jones,[1] who regards it as being without intelligent design, and the other by Dr. Rau,[2] who does not sug-

[1] Jones: Antiquities of the Southern Indian, plate XXX.

[2] Archæological Collection of the National Museum, p. 69.

gest an interpretation. Among the thirty or forty specimens that I have examined, the engraving of the serpent is, with one exception, placed upon the concave side of the disk, which is, as usual, cut from the most distended part of the *Busycon perversum*, or some similar shell. The great uniformity of these designs is a matter of much surprise. At the same time, however, there is no exact duplication; there are always differences in position, detail, or number of parts. The serpent is always coiled, the head occupying the center of the disk. With a very few exceptions the coil is sinistral. The head is so placed that when the gorget is suspended it has an erect position, the mouth opening toward the right hand.

As at first glance it will be somewhat difficult for the reader to make out clearly the figure of the serpent, even with the well defined lines of the drawing before him, I will present the description pretty much in the order in which the design revealed itself to me in my first attempt to decipher it.

The saucer-like disks are almost circular, the upper edge being mostly somewhat straightened—the result of the natural limit of the body of the shell above. All are ground down to a fairly uniform thickness of from one-eighth to one-fourth of an inch. The edges are evenly rounded and smooth. Two small holes for suspension occur near the rim of the straighter edge, and generally on or near the outline of the engraved design, which covers the middle portion of the plate. The diameter ranges from one to six inches.

To one who examines this design for the first time it seems a most inexplicable puzzle; a meaningless grouping of curved and straight lines, dots and perforations. We notice, however, a remarkable similarity in the designs, the idea being radically the same in all specimens, and the conclusion is soon reached that there is nothing haphazard in the arrangements of the parts and that every line must have its place and purpose. The design is in all cases inclosed by two parallel border lines, leaving a plain belt from one-fourth to three-fourths of an inch in width around the edge of the disk. All simple lines are firmly traced, although somewhat scratchy, and are seldom more than one-twentieth of an inch in width or depth.

In studying this design the attention is first attracted by an eye-like figure near the left border. This is formed of a series of concentric circles, the number of which varies from three in the most simple to twelve in the more elaborate forms. The diameter of the outer circle of this figure varies from one-half to one inch. In the center there is generally a small conical depression or pit. The series of circles is partially inclosed by a looped band one-eighth of an inch in width, which opens downward to the left; the free ends extending outward to the border line, gradually nearing each other and forming a kind of neck to the circular figure. This band is in most cases occupied by a series of dots or conical depressions varying in number from one to thirty. The

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1. Shell gorget from Georgia. (¼)

1. McMahan Mound, Tenn. (¼)

RATTLESNAKE GORGETS.

1

2

1. McMahan Mound, Tenn. 2. McMahan Mound, Tenn.

RATTLESNAKE GORGETS.

($\frac{3}{4}$)

neck is decorated in a variety of ways; by dots, by straight and curved lines, and by a cross-hatching that gives a semblance of scales. A curious group of lines occupying a crescent-shaped space at the right of the circular figure and inclosed by two border lines, must receive particular attention. This is really the front part of the head—the jaws and the muzzle of the creature represented. The mouth is always clearly defined and is mostly in profile, the upper jaw being turned abruptly upward, but, in some examples, an attempt has been made to represent a front view, in which case it presents a wide V-shaped figure. It is, in most cases, furnished with two rows of teeth, no attempt having been made to represent a tongue. The spaces above and below the jaws are filled with lines and figures, which vary much in the different specimens; a group of plume-like figures, extends backward from the upper jaw to the crown, or otherwise this space is occupied by an elongated perforation. The body is represented encircling the head in a single coil, which appears from beneath the neck on the right, passes around the front of the head, and terminates at the back in a pointed tail with well defined rattles. It is engraved to represent the well-known scales and spots of the rattlesnake, the conventionalized figures being quite graphic. In the group of specimens represented in Plate LXIV areas of cross-hatched lines, representing scales, alternate with circular figures, containing two or three concentric circles and a central dot. In some cases one or more incised bands cross the body in the upper part of the curve.

The examples shown in Plate LXV have many distinctive features. The markings of the body consist of alternating areas of scales and chevrons or of chevrons alone. These figures are interrupted in the upper part of the coil by a number of lines which cross the body at right angles. The body is in many cases nearly severed from the rim of the disk by four oblong perforations, which follow the border line of the design. In most cases three other perforations occur about the head; one represents the mouth, one defines the forehead and upper jaw, and the third is placed against the throat. These may be intended merely to define the form more clearly. The curious plume-like figures that occur upon the heads of both varieties may indicate the natural or reputed markings of the animal represented. It is possible that the group shown in this plate may be intended to represent the common yellow rattlesnake, the *Crotalus horridus*, of the Atlantic slope, the characteristic markings of which are alternating light and dark chevrons, while the diamond rattlesnake, the *Crotalus adamanteus*, of the Southern States may have served as a model for the other group.

In Plate LXII I present two of these rattlesnake gorgets. The specimens shown in Fig. 1 is from Georgia and is the smallest example that has come to my notice. It is represented natural size. The design is quite obscure, but enough remains to show that it does not differ es-

sentially from the type already presented. There appear to be no holes for suspension, but it is probable that two of the oblong perforations upon the border of the design had been used for that purpose.

The handsome specimen given in Fig. 2 was obtained from the great mound at Sevierville, Tenn., and is in a very good state of preservation. It is a deep, somewhat oval plate, made from a *Busycon perversum*. The surface is nicely polished and the margins neatly beveled. The marginal zone is less than half an inch wide and contains at the upper edge two perforations, which have been considerably abraded by the cord of suspension. Four long curved slits or perforations almost sever the central design from the rim; the four narrow segments that remain are each ornamented with a single conical pit. The serpent is very neatly engraved and belongs to the chevroned variety. The eye is large and the neck is ornamented with a single rectangular intaglio figure. The mouth is more than usually well defined. The upper jaw is turned abruptly upward and is ornamented with lines peculiar to this variety of the designs.

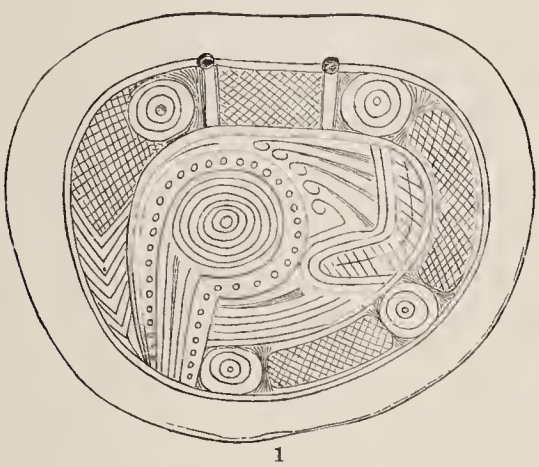
The body opposite the perforations for suspension is interrupted by a rather mysterious cross band, consisting of one broad and two narrow lines. As this is a feature common to many specimens it probably has some important office or significance.

In Plate LXIII I present two of the best examples of these serpent gorgets yet brought to light. They were obtained from the McMahan Mound, at Sevierville, Tenn., in 1871, and are in an excellent state of preservation. Both are made from large heavy specimens of the *Busycon perversum*. The example given in Fig. 1 is but slightly altered by decomposition, the translucency of the shell being still perceptible. The back retains the strongly marked ridges of growth. The interior has been highly polished, but is now somewhat marked, apparently by some fine textile fabric which has been buried with it and has, in decaying, left its impress upon the smooth surface of the shell. The design is very much like the type described, but has some peculiar features about the neck and under the head of the serpent.

The specimen shown in Fig. 2 may be regarded as a type of these gorgets, and is the one chiefly used in the general description given on a preceding page. It is six inches long by five wide, and has been neatly dressed and polished on both sides. As every detail is clearly and correctly shown in the cut I shall not describe it further.

For convenience of comparison I have arranged two plates of outlines. The specimen shown in Fig. 1, Plate LXIV, is almost identical with the one last mentioned in size and shape. This, with the similar but somewhat smaller specimen given in Fig. 2, is also from the McMahan Mound. Figs. 3 and 4 are outlines of the specimens already given in Plate LXIII.

The fine specimen shown in Fig. 5 is from the Brakebill Mound, near Knoxville, Tenn., and is now in the Peabody Museum. It is five inches in length and a little more than four and one-half in width. It is very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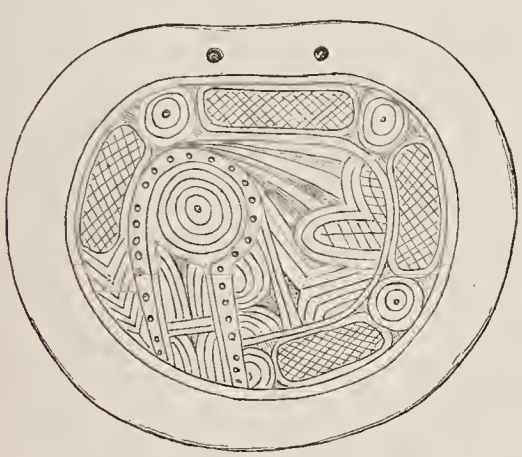
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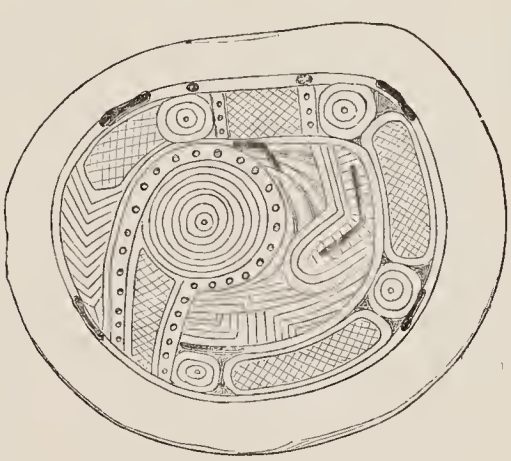
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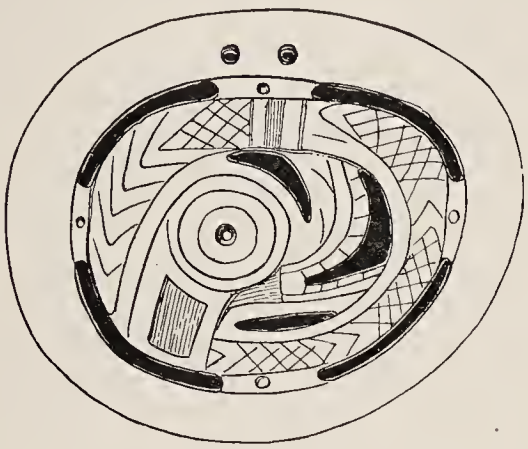
1. McMahan Mound.
2. McMahan Mound.
3. McMahan Mound
4. McMahan Mound.
5. Brakebill Mound.
6. Williams Island.

RATTLESNAKE GORGETS.

Tennessee.



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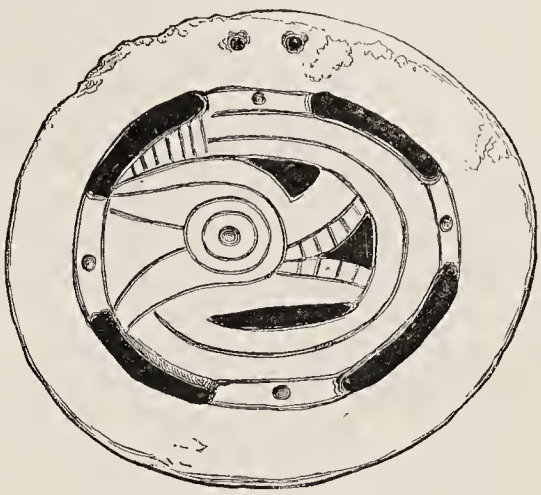

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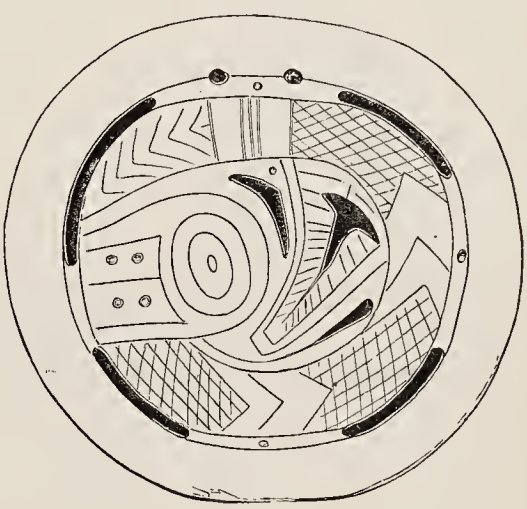

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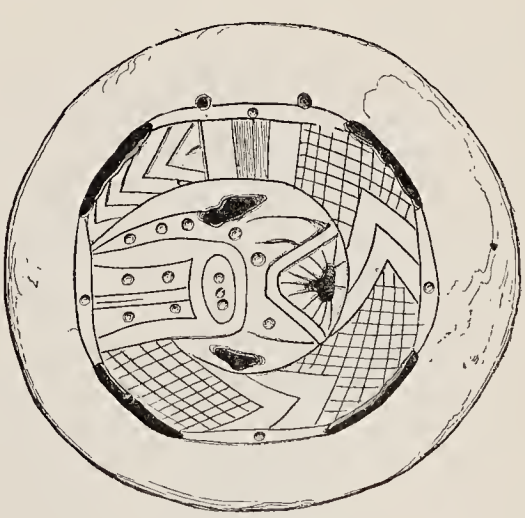

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1. McMahan Mound.
2. Lick Creek Mound.
3. McMahan Mound.
4. McMahan Mound.
5. Green County Mound.
6. Lick Creek Mound.

RATTLESNAKE GORGETS.

Tennessee.

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1. Shell gorget, Georgia.
2. Shell gorget, Tennessee.
3. 4. Painting, Peru.
5. From an Aztec painting.
6. Stone disk, Carthage, Ala.
7. Painted on rock, Nicaragua.

THE SERPENT.

much like the Sevierville specimens and is made of the same species of shell. The markings of the space beneath the head are peculiar, and in some other details it differs from the other specimens.

Fig. 6 illustrates a large specimen now in the National Collection. It is also from Tennessee, and resembles the preceding examples quite closely.

The specimens illustrated in Plate LXV represent a somewhat different type of design, but are found associated with the others. The three shown in Figs. 2, 6, and 7 belong to the Peabody Museum, and are from mounds in East Tennessee. The others are in the National Collection, and come from the same region.

It was my intention to pursue this study somewhat further, and the illustrations presented in Plate LXVI were partially prepared for the purpose of instituting comparisons between these northern forms and others of the south, but the time at my disposal will not permit of it.

Fig. 1 is an outline of a rattlesnake gorget, probably from Georgia, which is preserved in the Natural History Museum of New York. It is four inches in length by three and one-half in width. The same specimen is figured by Jones in Plate XXX of his "Antiquities of the Southern Indians."

Fig. 2 represents a large specimen from Tennessee, which is now preserved in the National Collection. The design is placed upon the gorget somewhat differently from the other specimens, the mouth of the serpent being near the top and the neck below at the right. There is also a dotted belt at the right of the head which is not found in any of the specimens described.

Figs. 3 and 4 represent drawings of serpents' heads found in the ancient city of Chimu, Peru.[1]

Fig. 5 is copied from one of the codices of Goldsborough, and is a very spirited representation of a plumed and spotted rattlesnake.

The tablet shown in Fig. 6 has already been described under "scalloped disks."

The remarkable plumed and feathered serpent given in Fig. 7 is painted upon the rocks at Lake Nijapa, Nicaragua.[2]

THE HUMAN FACE.

A very important group of shell ornaments represent, more or less distinctly, the human face. By a combination of engraving and sculpture a rude resemblance to the features is produced. The objects are generally made from a large pear-shaped section of the lower whorl of heavy marine univalves. The lower portion, which represents the neck and chin, is cut from the somewhat restricted part near the base of the shell, while the broad outline of the head reaches the first suture of the noded shoulder of the body whorl. The simplest form is represented

[1] Squier: Peru, p. 186.

[2] Bancroft: Native Races of the Pacific States, vol. IV., p. 37.

by a specimen from a mound at Sevierville, Tenn. It is a plain, pear-shaped fragment, with evenly dressed margin and two perforations, which take the position of the eyes. A sketch of this is presented in Fig. 1, Plate LXIX. Similar specimens have been obtained from mounds in other States. A little further advance is made when the surface of the most convex part is ground away, with the exception of a low vertical ridge, which represents the nose. Further on a boss or node appears below the nose, which takes the place of the mouth, as seen in Fig. 2.

From the elementary stages exhibited in these specimens a gradual advance is made by the addition of details and the elaboration of all the features. A corona encircles the head, the ears are outlined (Fig. 5, Plate LXX), the eyes are elaborated by adding one or more concentric circles or ovals, brows are placed above, and groups of notched and zigzag lines extend downward upon the cheeks. The node at the mouth is perforated or cut in intaglio in circular or oblong figures, and the chin is embellished by a variety of incised designs. Illustrations of the various forms are given in Plates LXIX and LXX.

These objects are especially numerous in the mounds of Tennessee, but their range is quite wide, examples having been reported from Kentucky, Virginia, Illinois, Missouri, and Arkansas, and smaller ones of a somewhat different type from New York. In size they range from two to ten inches in length, the width being considerably less. They are generally found associated with human remains in such a way as to suggest their use as ornaments for the head or neck. There are, however, no holes for suspension except those made to represent the eyes, and these, so far as I have observed, show no abrasion by a cord of suspension. Their shape suggests the idea that they may have been used as masks, and as such may have been placed upon the faces of the dead in the same manner that metal masks were used by some oriental nations.

Among the large number of interesting objects of shell obtained from the McMahon Mound at Sevierville, Tenn., were a number of these shell masks. In the notes of the collector they are mentioned as having been found on the breast or about the heads of skeletons. The example shown in Fig. 1, Plate LXVII, is a medium-sized, rather plain specimen from the above-named locality. It is seven and one-fourth inches long and nearly six inches wide, and has been made from a *Busycon perversum*. The margins are much decayed, and the convex surface is pitted and discolored. The inside is smooth, and has a slight design rudely engraved upon it. Of a very different type is the specimen shown in Fig. 2. It is new looking, and well preserved. The slightly translucent surface is highly polished, and the engraved lines are quite fresh looking. It was collected by J. D. Lucas, and is labeled Aquia Creek, Va. It is five and one-half inches in length by five in width, and is apparently made from some dextral-whorled shell. The outline is somewhat rec-

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1. Mask-like ornament, Tennessee. ($\frac{1}{2}$).

2. Mask-like ornament, Virginia. ($\frac{3}{4}$)

THE HUMAN FACE.

SHELL MASK.

Virginia.

($\frac{1}{2}$)

tangular, the upper surface being pretty well rounded and ornamented with a corona of incised lines, which are arranged in six groups of four each. Inside of these a single incised line runs parallel with the edge, from temple to temple. The eyes are represented by small circles with small central pits, and the lids are indicated by long, pointed ellipses. From each of the eyes a group of three zigzag lines extends downward across the cheek, terminating near the edge of the plate, opposite the mouth. These lines may be interpreted in two ways: First, if the object is a mourning mask, made with especial reference to its use in burial, they may signify tears, since, in the pictographic language of many tribes, tears are represented by lines descending from the eyes, and, with other nations, running water is symbolized by curved or zigzag lines; in the second place, these lines may represent figures painted upon the face during the period of mourning, or they may simply represent the characteristic lines of the painting or tattooing of the clan or tribe to which the deceased belonged. It is not at all improbable that these objects were further embellished by painted designs which have been obliterated.

The nose is represented by a flat ridge, which terminates abruptly below, the nostrils being indicated by two small excavations. The mouth is represented by an oval node, in which a horizontal groove has been made.

The most elaborately engraved example of these masks yet brought to the notice of the public is shown in Plate LXVIII. It was obtained by Mr. Lucien Carr from a large mound, known as the Ely Mound, near Rose Hill, Lee County, Virginia, and is described and illustrated by that gentleman in the tenth annual report of the Peabody Museum.[1] Wishing to present this fine specimen to the best advantage possible, I have had a large cut made from a photograph furnished by Professor Putnam, curator of the Peabody Museum. Parts of the design which were obscure I have strengthened, following the guidance of such fragments of lines as were still traceable, or by simply duplicating the lines of the opposite side, as these designs are in all cases bi-symmetrical.

Having described a great number of relics exhumed from this mound, Mr. Carr goes on to say "that the most interesting of the articles taken from this grave was an engraved shell made from the most dilated portion of the *Strombus gigas*, and carved on the convex side into the likeness of a human face." It measures 138 millimeters in length, by 120 in breadth. It is perforated with three holes, "the two upper of which are surrounded with circles, and represent eyes; between these is a raised ridge of shell, in place of the nose, and below this is a third hole, which is just above a series of lines that were probably intended as the mouth. Four lines, parallel to each other during three-fourths of their length, begin at the outer corner of the eye and are zigzaged to the lower jaw, where they are drawn to a point. The concave side of the

[1] Carr, in Tenth Annual Report Peabody Museum, p. 87.

shell is perfectly plain, and still preserves its high polish, though the right portion of the face on the carved or convex side shows the sad effects of time and exposure."

Although I have not had an opportunity of examining this specimen closely, I am inclined to the opinion, judging by its outlines, that the shell from which it was made has been sinistrally whorled, and hence a *Busycon perversum*. I should also prefer to consider the hole beneath the nose as representing the mouth, as it certainly does in many other cases, and the peculiar figure—the three vertical lines which extend downward from the hole and the two banded figures that cross them at right angles—as a representation of some painted or tatooed design characteristic of the builders of the mound.

Other examples of these objects are represented in Plate LXIX. Of especial interest I may mention the specimen shown in Fig. 4, obtained, with other similar examples, by Professor Putnam, from the Lick Creek mound, in East Tennessee. The perforations which represent the eyes are surrounded by two concentric circles, and the zigzag lines beneath are supplemented by two sets of pendant figures formed of notched lines, the two longer of which extend down the sides of the nose, the others being connected with the lower margin of the eye. In one example four parallel lines pass from the mouth downward over the chin.

Fig. 3 represents a specimen from the Brakebill Mound, East Tennessee. The mouth is not indicated, and the nose is but slightly relieved. Each eye, however, is inclosed by a figure which extends downward over the cheek, terminating in three sharp points.

So far as the specimens at hand show, this peculiar embellishment of the eyes and mouth is characteristic of Virginia and East Tennessee. A small specimen from Georgia, now preserved in the Natural History Museum at New York, has a somewhat similar ornamentation of the eyes. This specimen is shown in Fig. 6, Plate LXX.

In Fig. 8 of the same plate we have the representation of a face modeled in clay, on which a number of incised lines, similar to those engraved on shell, have been drawn. The crown of notches is also present. The specimen has been illustrated by Professor Jones.[1] It is now in the museum of Natural History at New York, and was probably obtained from the Etowah Valley, Georgia. Examples in stone are also numerous, and show certain features in common with those in shell.

Fig. 9 is from Northern Ohio, and is carved from a nodule of iron ore.

The very beautiful little head shown in Figs. 1 and 2 is from a cave at Mussel Shoals, Ala. It is made of shell, and is somewhat altered by decay. The crown is peculiarly notched, and resembles a very common Mexican form. The notch in the middle of the forehead can be traced to a division in the head-dress noticed in the more elaborately carved Mexican specimens.

The example shown in Figs. 3 and 4 is copied from a rather rude cut

[1] Jones: Antiquities of the Southern Indians, p. 430.

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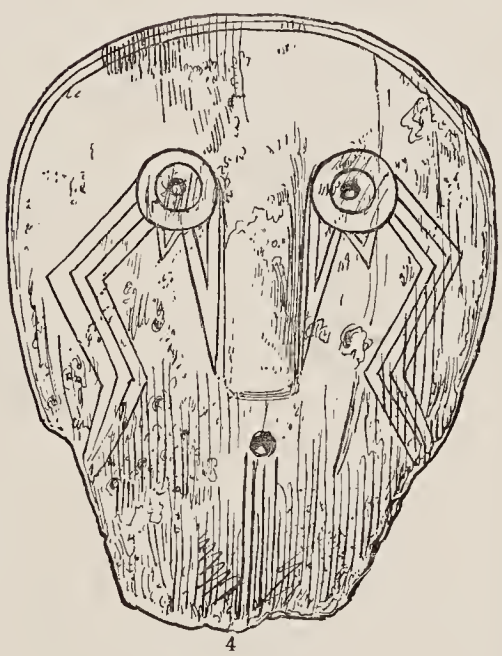

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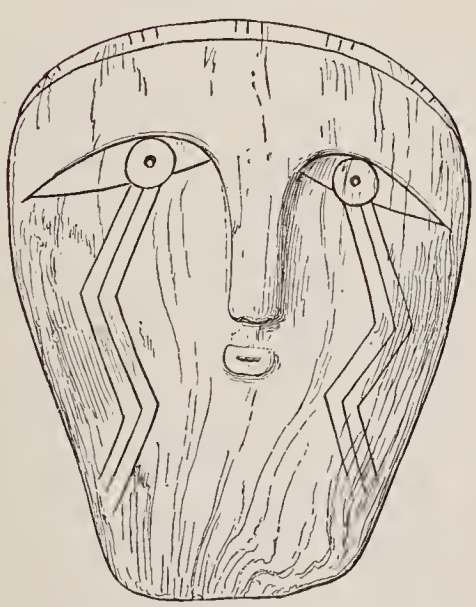

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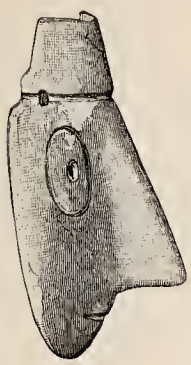
1. McMahan Mound, Tenn.
2. McMahan Mound, Tenn.
3. Brakebill Mound, Tenn.
4. Lick Creek Mound, Tenn.
5. Acquia Creek, Va.
6. Mound, Ely County, Va.

THE HUMAN FACE.



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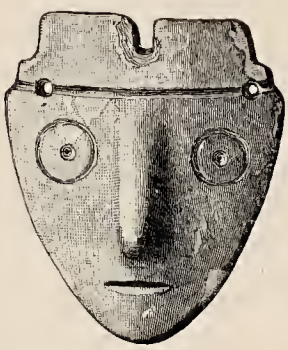

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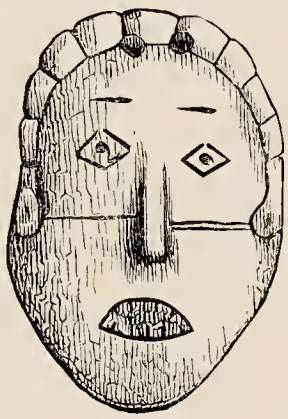

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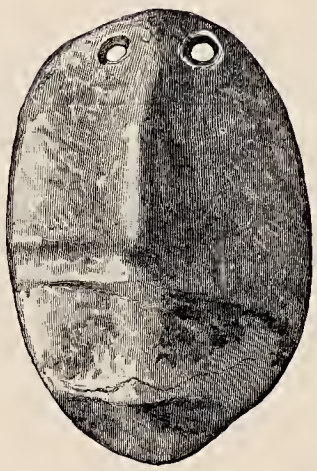

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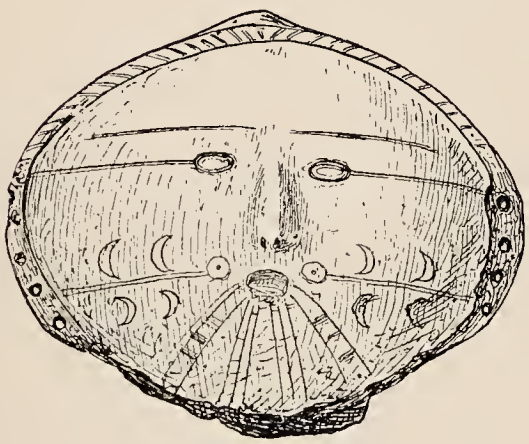

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1, 2. Shell ornament from a cave, Alabama. (¼)
3, 4. Shell ornament from New York. (¼)
5. Shell ornament, stone grave, Tennessee.
6. Shell ornament from Georgia. (¼)
7. Shell ornament from Tennessee. (¼)
8. Face modeled in clay, Georgia.
9. Face carved in iron ore, Ohio.

THE HUMAN FACE.

given by Schoolcraft, who describes it as follows: "This well-sculptured article was discovered in the valley of the Kasauda Creek, Onondaga County. The material is a compact piece of sea-shell. It still preserves in a considerable degree the smoothness and luster of its original finish. * * * At the angle of the temples are two small orifices for suspending it around the neck. The entire article is finished with much skill and delicacy."[1]

The very rude specimen presented in Fig. 7 is from a mound at Franklin, Tenn. It seems to have been some natural form, but slightly changed by art. A somewhat similar specimen from a mound in Tennessee may be seen in the Peabody Museum.

The cut presented in Fig. 5 is taken from Jones's Antiquities of Tennessee, page 48. The specimen was obtained from the stone grave of a child at the foot of a mound near Nashville, Tenn. It has diamond-shaped eyes, a feature of very rare occurrence in the art of this region.

THE HUMAN FIGURE.

I now come to a class of works which are new and unique, and in more than one respect are the most important objects of aboriginal art yet found within the limits of the United States. These relics are four in number, and come from that part of the mound-building district occupied at one time by the "stone grave" peoples—three from Tennessee and one from Missouri. Similar designs are not found in other materials, and, indeed, nothing at all resembling them can be found, so far as I know, either in stone or in clay. If such have been painted or engraved on less enduring materials they are totally destroyed. I shall first describe the specimens themselves, and subsequently dwell at some length upon their authenticity, their significance, and their place in art.

First, I present, in Plate LXXI, a shell gorget on which is engraved a rather rude delineation of a human figure. The design occupies the concave side of a large shell disk cut from a *Busycon perversum*. Near the upper margin are the usual holes for suspension. The engraved design fills the central portion of the plate and is inclosed by two approximately parallel lines, between which and the edge of the shell there is a plain belt three-fourths of an inch wide. A casual observer would probably not recognize any design whatever in the jumble of half obliterated lines that occupies the inclosed space. It will first be noticed that a column about three-fourths of an inch in width stands erect in the center of the picture; from this spring a number of lines, forming serpentine arms, which give the figure as much the appearance of an octopus crowded into a collector's alcohol jar as of a human creature. A little study will convince one, however, that the central column represents the human body, and the tangle of lines surrounding it will be found to represent the arms, legs, hands, feet, and their appendages—no line within the border being without its

[1] Schoolcraft: Notes on the Iroquois, p. 235.

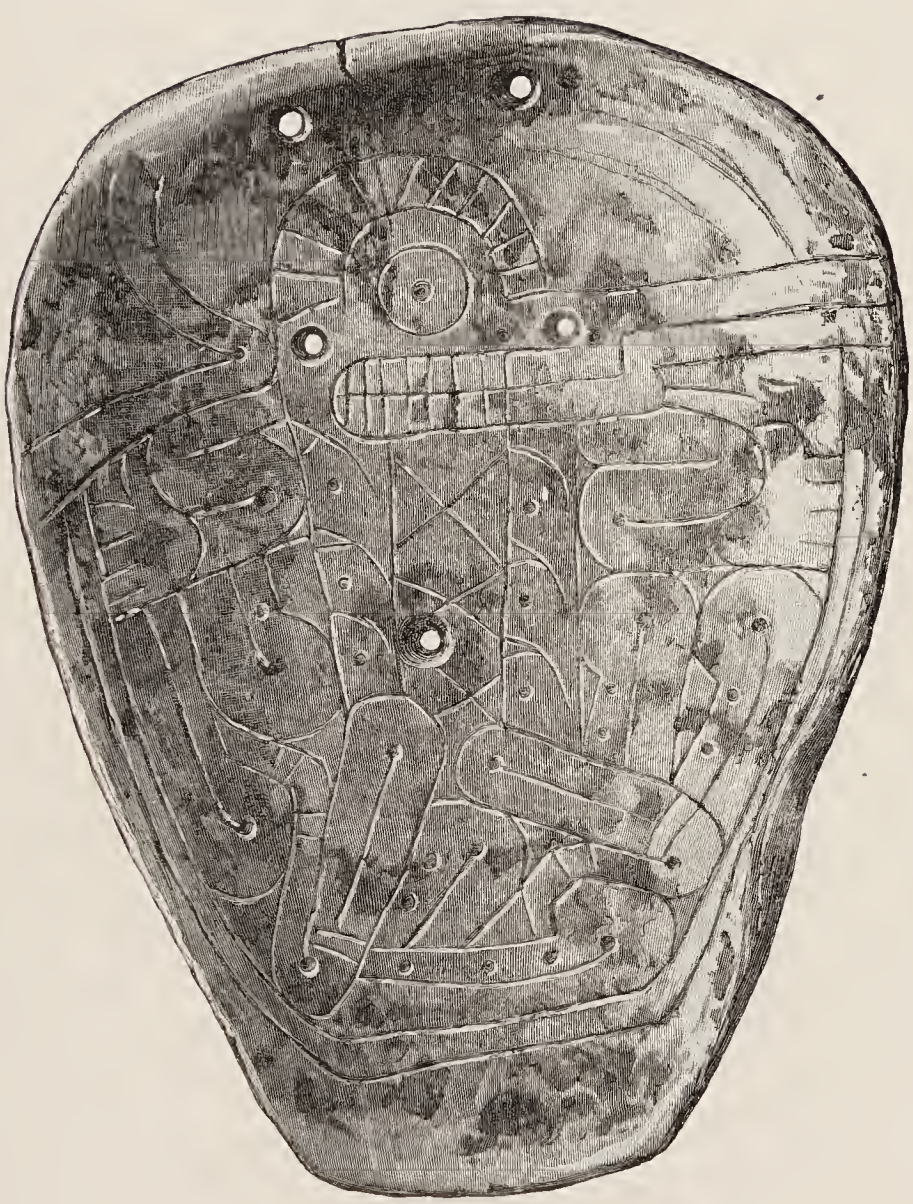
office. The upper extremity of the body is occupied by a circle one-eighth of an inch in diameter, which represents the eye. The head is not distinguished from the body by any sort of constriction for the neck, but has evidently been crowned by a rude aurora-like crest similar to that found in so many aboriginal designs. This does not appear in the engraving given, as it, as well as other features, was so nearly obliterated as to escape observation until the idea was suggested by the study of other similar designs. The mouth is barely suggested, being represented by three shallow lines placed so low on the trunk that they occupy what should be the chest. From the side of the head a number of lines, probably meant for plumes, extend across the bordering lines almost to the edge of the shell; below this are two perforated loops, which seem to take the place of ears; the one on the right is doubly perforated and has a peculiar extension, in a bent or elbowed line, across the border. The arms are attached to the sides of the body near the middle in a haphazard sort of way and are curiously double jointed; they terminate, however, in well-defined hands againstthe right and left borders, the thumb and fingers being, in each case, distinctly represented. The legs and feet are at first exceedingly hard to make out, but when once traced are as clear as need be. The body terminates abruptly below within an inch of the base of the inclosed space. One leg extends directly downward, the foot resting upon the border line; the other extends backward from the base of the trunk and rests against the border line at the right; the legs have identical markings, which probably represent the costume. Each foot terminates in a single well-defined talon or claw, which folds upward against the knee. This is a most interesting feature, and one which this design possesses in common with the three other drawings of the human figure found in Tennessee. The spaces between the various members of the figure are filled in with ornamental appendages, which seem to be attached to the hands and feet, and probably represent plumes. The numerous perforations in this specimen are worthy of attention: within the border line there are twenty-six, which vary from one-fourth to one-sixteenth of an inch in diameter. They are placed mostly at the joints of the figure or at the junction of two or more lines. Such perforations are of frequent occurrence in this class of gorgets and may have had some particular significance to their possessors. This specimen was found in the great mound at Sevierville, Tenn., upon the breast of a skeleton, and is now in the National Collection. It has suffered considerably from decay, the surface being deeply furrowed, pitted, and discolored. The holes are much enlarged and the lines in places are almost obliterated.

I began the study of this design with the thought that, in reference to this specimen at least, Professor Jones was right, and that the confused group of lines might be the meaningless product of an idle fancy, but ended by being fully satisfied that no single line or mark is without its place or its significance.

SHELL GORGET—THE HUMAN FIGURE.

McMahan Mound, Tennessee.

($\frac{2}{3}$)



SHELL GORGET—THE HUMAN FIGURE.

Mound, Tennessee.

($\frac{3}{4}$)

After having examined this design so critically, it will be an easy matter to interpret that engraved upon the tablet illustrated in Plate LXXII. Although found in widely separated localities, and engraved in a somewhat different style, they are identical in type, and exhibit but slight differences in detail. At the top of the plate we have the two doubly conical perforations for suspension, but the double border line is not completed above, being interrupted by the plumes from the head. The head itself is decorated with the usual crown of radiating lines, a small circle with a central pit represents the eye, and below this is a well-defined mouth with a double row of teeth. Extending to the right from the mouth is an appendage consisting of one straight and two interrupted lines, which may be a part of the costume, or, since it issues from the mouth, may possibly symbolize speech. The body, which is short and straight, is divided vertically into three parts; the central space contains a large conical perforation, and is covered with a lace-work of lines; the lateral spaces are ornamented with rows of buttons or scales, which consist of meagerly outlined circles with central dots. The curiously folded arms have precisely the same relative positions as the corresponding members in the other specimen, and the fingers touch the bordering line on the right and left, the thumb being turned backward against the elbow. The legs are represented in a manner that suggests a sitting posture, the rounded knees coming in front of and joining the base of the body; in position and decoration they repeat the other specimen. The feet, or the rounded extremities that represent them, rest upon the border line, as in the case previously described, and terminate in upturned talons that are long, curved, and jointed, and terminate in square or blunt tips. Plume-like appendages are attached to the arms and legs, and fill the spaces not occupied by the members of the body; these plumes or pendants are always represented by folded bands or fillets which are ornamented on one side with dots. A plume attached to the left side of the head is represented by two curved lines, which reach to the edge of the shell. There are five perforations, two for suspension, two at the sides of the face, and one near the middle of the trunk. This specimen is in a very perfect state of preservation, the surface being smooth and but little stained. It is somewhat pear-shaped, resembling in this respect the mask-like gorgets previously described. It is about seven inches in height and five in width, and has been made from a very thick and compact shell, probably a *Busycon*. It was obtained from a mound in Meigs County, Tennessee, and is preserved in the Peabody Museum. In mechanical execution this specimen is much superior to the preceding one; the edges and surface of the shell are nicely dressed, although the lines of the design are indifferently cut.

Another unique shell gorget is presented in Plate LXXIII. It was obtained from a mound in Southeastern Missouri, and is now in the possession of Professor Potter, of Saint Louis. The disk is about four and a half inches in diameter, and was originally nearly circular, but the edges

are now much decayed and battered. A cut with a brief description is given by Mr. A. J. Conant in his recent work, "Foot-prints of Vanished Races," page 95. My cut is made from a photograph obtained from Professor Putnam, of the Peabody Museum. This is probably the same photograph used by Mr. Conant. The engraved design is of a totally distinct type from the last, and evinces a much higher grade of skill in the artist. It is encircled by six nearly parallel lines, which occupy about half an inch of the border of the disk. Portions of these still remain, the inner one being nearly entire. Between this and the second line are two perforations for suspension. The idea first suggested by a glance at the engraved design is that it strongly resembles the work of the ancient Mexicans, and the second idea of many archæologists will probably be that there may be a doubt of its genuineness. Setting this question aside for the present, let us examine the engraving in detail. Placing the plate so that the two perforations are at the left, we have the principal figure in an upright posture. This figure apparently represents a personage of some importance, as he is decked from head to foot with a profusion of ornaments and symbols. He is shown in profile with the arms extended in action, and the feet separated as if in the act of stepping forward. The head is large, occupying about one-third of the height of the design. The elaborate head-dress fills the upper part of the inclosed space, pendant plumes descend to the shoulders before and behind, and circular ornaments are attached to the hair and the ear. The conventionalized eye is lozenge or diamond shaped, with a small conical pit for the pupil.

The profile shows a full forehead, a strong nose, and a prominent chin. Two lines extend across the cheek from the bridge of the nose to the base of the ear. In and projecting from the mouth is a symbolic figure, the meaning of which can only be conjectured. The shoulders and body are but meagerly represented. From the waist a peculiar apron-like object is suspended, which reaches to the knees; it may be a part of the costume or a priestly symbol. The legs and feet are dwarfed, but quite well outlined. There are encircling bands at the knees and ankles, and a fan-like extension of the costume, somewhat resembling the tail of a bird, descends between the legs. Attached to the back, is a figure of a rather extraordinary character. Similar figures may be seen in some of the Mexican paintings, and seem to represent a contrivance for carrying burdens, in which at times elfish figures are accommodated. The right arm is extended forward, and the hand grasps a singular shaft, with which a blow is aimed at the severed head of a victim, which is held face downward by the left hand of the standing figure. The severed head still retains the plumed cap, from which a long pendant descends in front of the face. The eye is lozenge-shaped. A zigzag line crosses the cheek from the ear to the bridge of the nose, and a curious symbolic figure is represented

SHELL GORGET—THE HUMAN FIGURE.

Missouri.

(1/1)

ENGRAVED GORGET—FIGHTING FIGURES.

Tennessee.

(1/1)

as issuing from the mouth. The shaft held in the right hand seems to issue from a circular figure, doubtless of symbolic character, which occupies the space in front of the head of the standing figure. It is possible that the figure which issues from the mouth of the victim represents the point of this mystic shaft which has penetrated the head, although we should have to allow some inaccuracies in the drawing if this were the case. Any one at all familiar with the curious pictographic manuscripts of the ancient Mexicans will see at a glance that we have here a sacrificial scene, in which a priest seems to be engaged in the sacrifice of a human being. In the extraordinary manuscripts of the ancient Aztecs we have many parallels to this design. So closely does it approach the Aztec type that, although no duplicate can be found in any of the codices, there is not a single idea, a single member or ornament that has not its analogue in the Mexican manuscripts. To make this clear to every one I present, in Plate LXXV, Fig. 4, a single example for comparison. This one is selected from the manuscript of M. De Féjerváry, preserved at Budapest, Hungary.[1] Fortunately for the credit of this Missouri relic we do not find its duplicate—there are only family resemblances; there are similar plumes, with similar ornaments and pendants, similar costume and attitudes; there are similar features and similar symbols; but there is no absolute identity, except in motive and conception.

Among the multitude of works of art collected within the last decade very few will be found to surpass in interest the fragment of a shell gorget from the McMahon Mound, at Sevierville, Tenn. The disk, when entire, has been nearly five inches in diameter. A little more than one-third had crumbled away, and the remaining portion was only preserved by the most careful handling, and by immediate immersion in a thin solution of glue. This specimen is the first of the kind ever brought to light in this country, and must certainly be regarded as the highest example of aboriginal art ever found north of Mexico. The design, as in the other cases, has been engraved on the convex surface of a polished shell disk, and represents two human figures, plumed and winged and armed with eagles' talons, engaged in mortal combat. As in the last specimen described, this has, at first sight, an exotic look, bearing certainly in its conception a general resemblance to the marvelous bas-reliefs of Mexico and Central America; but the resemblance goes no further, and we are at liberty to consider it a northern work *sui generis*. The design has apparently covered the entire tablet, leaving no space for encircling lines. The two figures are in profile and face each other in a fierce onset. Of the right-hand figure only the body, one arm, and one leg remain. The left-hand figure is almost complete; the outline of the face, one arm, and one foot being obliterated. The right hand is raised above the head in the act of brandishing a long double-pointed

[1] Kingsborough, Vol. III, pl. 22.

knife. At the same time this doughty warrior seems to be receiving a blow in the face from the right hand of the other combatant, in which is clutched a savage-looking blade, with a curved point. The hands are vigorously drawn, the joints are correctly placed, and the thumb presses down upon the outside of the forefinger in its natural effort to tighten and secure the grasp. Two bands encircle the wrists and probably represent bracelets. The arms and shoulders are plain. The head is decorated with a single plume, which springs from a circular ornament placed over the ear; an angular figure extends forward from the base of this plume and probably represents what is left of the head-dress proper; forward of this, on the very edge of the crumbling shell, is one-half of the lozenge-shaped eye, the dot intended to represent the pupil being almost obliterated. It is certainly a great misfortune that both faces are completely gone; their exact character must remain conjectural. A neat pendant ornament is suspended upon the well-formed breast, and a broad belt encircles the waist, beneath which, covering the abdomen, is a design that suggests the scales of a coat of mail. The legs are well-defined and perfectly proportioned; the left knee is bent forward and the foot is planted firmly on the ground, while the right is thrown gracefully back against the rim at the left. Double belts encircle the knees and ankles. The legs terminate in wonderfully well-drawn eagle's feet, armed with vigorously curved talons. A very interesting feature of the design is the highly conventionalized wing, which is attached to the shoulder behind, and fills the space beneath the uplifted arm. A broad many-feathered tail is spread out like a fan behind the legs. The right hand figure, so far as seen, is an exact duplicate of the left. A design of undetermined significance occupies the space between the figures beneath the crossed arms; it may represent conventionalized drapery, but is more probably symbolic in its character. The heads have probably been a little too large for good proportion, but the details of the anatomy are excellent. The muscles of the shoulder, the breast and nipple, the waist, the buttock, and the calves of the legs are in excellent drawing. The whole group is most graphically presented. A highly ideal design, it is made to fill a given space with a directness of execution and a unity of conception that is truly surprising.

Let us turn for a moment from this striking effort of the mound-builders to the early efforts of other peoples in the engraver's art. Here are the drawings of the Troglodytes of France, scintillations of paleolithic genius, which appear as a flash of light in the midst of a midnight sky. They are truly remarkable. The clear-cut lines that shadow forth the hairy mammoth suggest the graphic and forcible work of the Parisian of to-day. The rude Esquimaux of our own time engraves images of a great variety of natural objects on his ornaments and implements of ivory in a manner that commands our admiration. But these shell tablets have designs of a much higher grade. They not only represent natural

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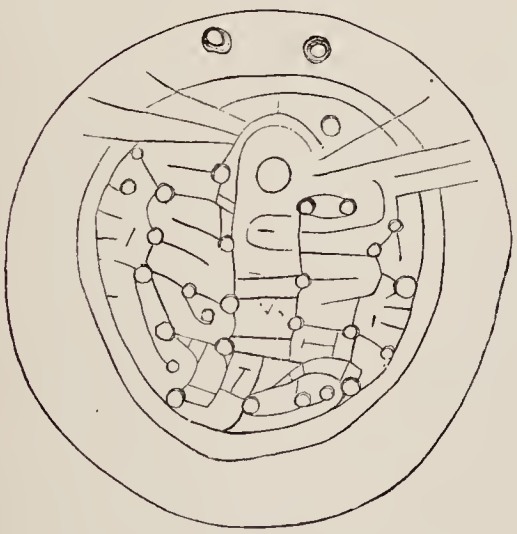

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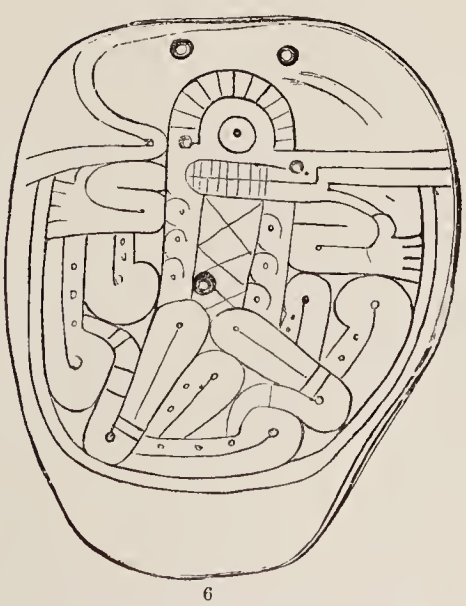


6

1. Shell gorget, McMahan Mound, Tenn
2. Sculptured in stone, Mexico.
3. Shell gorget, mound, Missouri.
4. Figure from an Aztec painting.
5. Shell gorget, McMahan Mound, Tenn.
6. Shell gorget, Lick Creek Mound, Tenn.

1

2

1. Design on Zuñi war-shield, painting. 2. Thunder-bird of the Haidahs, painting.

COMPOSITE FIGURES.

objects with precision, but they delineate conceptions of mythical creatures of composite character for which nature affords no model. In execution the best of these tablets will not compare with the wonderful works in stucco and stone of Palenque, or the elaborate sculptures of the Aztecs, but they are, like them, vigorous in action and complete in conception.

In case the authenticity of these relics be questioned, the facts in regard to them, so far as known, are here presented for reference. As to the two specimens from Sevierville, Tenn. (Plates LXXI and LXXIII), the shadow of a doubt cannot be attached to them. Were there no record whatever of the time or place of discovery, the evidence upon the faces of the relics themselves would show satisfactorily that they are genuine. They were taken from the great mound, which I have called the McMahon Mound, at Sevierville, Tenn. This mound was opened in 1881 by one of our most experienced collectors, Dr. E. Palmer. The specimens when found were in a very advanced stage of decay, pitted, discolored, and crumbling, and had to be handled with the utmost care to prevent total disintegration. They were dried by the collector, immersed in a weak solution of glue, and forwarded immediately to the National Museum at Washington. In this mound a multitude of relics were found, a large number being of shell, many of which are figured and described in this paper. These two gorgets, as well as many others of more ordinary types were found on or near the breasts of skeletons, and it is highly probable that they were suspended about the necks of the dead just as they had been worn by the living. By accurately ascertaining the authenticity of one of these specimens we establish, so far as need be, the genuineness of all of the same class. If one is genuine that is sufficient; the others may or may not be so, without seriously effecting the questions at issue, yet the occurrence of duplicate or closely related specimens in widely separated localities furnishes confirmatory evidence of no little importance. I do not wish to be understood as casting a doubt upon any of the four specimens described, as I am thoroughly convinced that there is no cause for suspicion.

The Missouri gorget, which has already been described and figured, was obtained by unknown persons in Southeastern Missouri. Several years back it came into the hands of Colonel Whitley, and from him it was obtained by its present owner, Professor Potter, of Saint Louis. There has never been a question as to its genuineness, and according to Professor Hilder, who saw it shortly after its discovery, the appearance and condition of the specimen were such that it could not have been of fraudulent manufacture. It was chalky and crumbling from decay, the lines of the design bearing equal evidence with the general surface of the shell of great age. Beside this, even if it were possible to produce such a condition in a recently carved shell, there existed no motive for such an attempt. Nothing was to be made by it; no benefit could accrue to the perpetrator to reward him for his pains, and, further, there was no

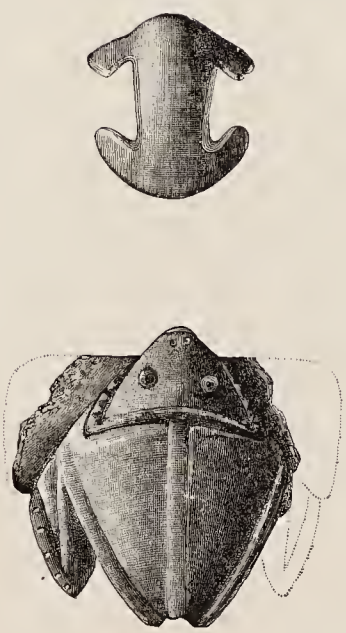
precedent, there was extant nothing that could serve as a model for such a work.

In Plate LXXV I have arranged a number of figures for convenience of comparison, Figs. 1, 3, 5, and 6, being outlines of the four examples just described. In regard to the restored part of the outline in Fig. 1, I wish to say that my only object in filling out the figure on the right was to secure as far as possible the full effect of the complete original. Observing that all that remains of the right hand figure—the arm, the body, the leg and foot, is a duplicate of the left, it is safe to conclude that the design has been approximately bi-symmetrical, slight discrepancies probably occurring in the details of head and arm, in the expression of face, or in the character of the weapon. It is much to be regretted that the faces are totally destroyed.

In Fig. 3 I present a group of two figures from the so-called "sacrificial stone" found in the Plaza Mayor, city of Mexico. It seems to represent the submission of one warrior or ruler to his victorious opponent, and is one of many designs that might be presented to illustrate the analogies of the Tennessee relic with the interesting works of the far South. There is what might be called a family resemblance, a similarity in idea and action, but little analogy of detail. The northern work is by far the more spirited, and is apparently superior in all the essentials of artistic excellence.

In the composite character of the personages represented this picture finds no parallel. Composite figures are of frequent occurrence in Peruvian art, as in the running figures sculptured on the great monolith at Tiahuanuco, or the mythical combats of the gods of the earth and sea painted on the pottery of Chimu. They are also found in the manuscripts of the ancient Mexicans, as well as in the paintings of the modern Pueblos of New Mexico (Fig. 1, Plate LXXVI), and in the totemic art of the Haidahs (Fig. 2, Plate LXXVI). The most frequent combinations are of birds with men, the inspiration of the work in all cases being derived from the mythology of the people. The wearing of masks has doubtless given rise to many such conceptions, and where the head alone of the human creature has undergone metamorphosis, we may suspect that a mask has originated the conception; but the Tennessee example appears to be the only one in which wings are added independently of the arms or in which bird's feet are attached to the otherwise perfect human creature.

And now we come to the question of the origin of these objects, and especially of the example most closely resembling Mexican work. The Missouri gorget is in many respects quite isolated from known works of the Mississippi Valley. Must it be regarded as an exotic, as an importation from the South, or does it belong to the soil from which it was exhumed? In order to answer this question we must not only determine its relations to the art of Mexico, but we must know just what affinities it has to the art of the mound-builders.



FROGS, ARIZONA.

Carved from *pectuneulus* shells. ($\frac{1}{1}$)

In the first place, gorgets of shell are a marked characteristic of the personal embellishment of the northern peoples. They may have been in use among the Aztecs, but do not appear among southern antiquities, and no evidence can be derived from history. This gorget belongs, in its general character as an ornament, to the North. It is circular in form, it has two small perforations near the margin for suspension, and is made from the wall of a large univalve. The design occupies the central portion of the convex side of the disk and is inclosed by a number of incised lines. In all of these features, together with its technical execution and its manner of inhumation, it is identical with the well-known work of the mound-builders. These analogies could hardly occur if it were an exotic. It is true, however, as we have already seen, that the design itself has a closer affinity to Mexican art than to that of the North. It represents a sacrificial scene, and has many parallels in the paintings and sculpture of the South, whereas no such design is known in the art of any nation north of Mexico.

The engravings of the mound-builders represent legendary creatures derived from the myths of the fathers, and in this respect have their parallels in the bird-man of the Haidahs, the war-god of the Zuñis, and the mythical deities of other countries; but they are never illustrative of the customs or ceremonies of the peoples themselves. As an ornament this Missouri gorget is a member of a great family that is peculiarly northern, but the design engraved upon it affiliates with the art of Mexico, and so close and striking are the resemblances, that accident cannot account for them, and we are forced to the conclusion that it must be the offspring of the same beliefs and customs and the same culture as the art of Mexico.

SMITHSONIAN INSTITUTION——BUREAU OF ETHNOLOGY.

ILLUSTRATED CATALOGUE

OF THE

COLLECTIONS OBTAINED FROM THE INDIANS

OF

NEW MEXICO AND ARIZONA IN 1879.

BY

JAMES STEVENSON.

NOTE.

The following catalogue of the collections made during 1879 was prepared for the First Annual Report of the Bureau of Ethnology, but owing to want of space was not included in that volume. Before the necessity of this action was made apparent the matter had been stereotyped and it was impossible to change the figure numbers, etc. This will explain the seeming irregularity in the numbering of the figures—the first one of this paper following the last one of the above-mentioned report. The second catalogue, that of the collection of 1880, also included in this volume, has been made to correspond with the first, the figure numbers following in regular order.

LETTER OF TRANSMITTAL.

WASHINGTON, *January* 3, 1881.

SIR: I have the honor to submit herewith an illustrated catalogue exhibiting in part the results of the ethnologic and archæologic explorations made under your direction in New Mexico and Arizona during the summer of 1879.

As you are already familiar with the mode of travel and the labor necessary in making such investigations and explorations, as well as the incidents common to such undertakings, and as I do not consider them of any special interest or value to the catalogue, I have omitted such details.

I beg, however, in this connection, to refer to the services of Messrs. F. H. Cushing, ethnologist of the Smithsonian Institution, and J. K. Hillers, photographic artist of the Bureau of Ethnology, both of whom accompanied me on the expedition.

Mr. Cushing's duties were performed with intelligence and zeal throughout. After the field-work of the season was completed he remained with the Indians for the purpose of studying the habits, customs, manners, political and religious organizations, and language of the people; also to explore the ancient caves of that region. His inquiries will prove of the utmost interest and importance to science. Mr. Hillers labored with equal zeal and energy. His work is of the greatest value in illustrating some of the most interesting features of our investigations. He made a large series of negatives depicting nearly every feature of the Pueblo villages and their inhabitants. The beauty and perfection of the photographs themselves fully attest the value and importance of his work.

I would extend most cordial thanks to General Sherman for the special interest he manifested in our work, and for directions given by him to the officers of the Army serving in the West to assist us in carrying out the objects of the expedition; and to the officers who so cordially rendered such aid.

To General Edward Hatch, commanding the district of New Mexico, we are indebted for valuable information and material assistance, which were liberally granted, and to which in great part our success was due. The party also received valuable aid from Gen. George P. Buell, U. S. A., who was in command at Fort Wingate during our work at Zuñi, for which I am pleased to extend thanks.

The large number and variety of objects collected by the members of the expedition, and the many difficulties incident to such undertakings, as well as the limited time devoted to the preparation of the catalogue, will account for any imperfections it may contain.

Hoping, however, that, notwithstanding these, it may serve useful ends in the continuation of such work,

I am, very respectfully, your obedient servant,

JAMES STEVENSON.

Prof. J. W. POWELL,
Director Bureau of Ethnology.

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ILLUSTRATED CATALOGUE OF THE COLLECTIONS OBTAINED FROM THE INDIANS OF NEW MEXICO AND ARIZONA IN 1879.

By James Stevenson.

INTRODUCTION.

It is not my intention in the present paper—which is simply what it purports to be, a *catalogue*—to attempt any discussion of the habits, customs, or domestic life of the Indian tribes from whom the articles were obtained; nor to enter upon a general comparison of the pottery and other objects with articles of a like character of other nations or tribes. Occasionally attention may be called to striking resemblances between certain articles and those of other countries, where such comparison will aid in illustrating form or character.

The collection contains two thousand eight hundred and fifty-eight specimens. Although it consists very largely of vessels and other articles of pottery, yet it embraces almost every object necessary to illustrate the domestic life and art of the tribes from whom the largest number of the specimens were obtained. It includes, in addition to pottery, implements of war and hunting, articles used in domestic manufactures, articles of clothing and personal adornment, basketry, trappings for horses, images, toys, stone implements, musical instruments, and those used in games and religious ceremonies, woven fabrics, foods prepared and unprepared, paints for decorating pottery and other objects, earths of which their pottery is manufactured, mineral pigments, medicines, vegetable dyestuffs, &c. But the chief value of the collection is undoubtedly the great variety of vessels and other articles of pottery which it contains. In this respect it is perhaps the most complete that has been made from the pueblos. Quite a number of articles of this group may perhaps be properly classed as "ancient," and were obtained more or less uninjured; but by far the larger portion are of modern manufacture.

ARTICLES OF STONE.

These consist of pestles and mortars for grinding pigments; circular mortars, in which certain articles of food are bruised or ground; *metates*, or stones used for grinding wheat and corn; axes, hatchets, celts, mauls, scrapers, &c.

The cutting, splitting, pounding, perforating, and scraping implements are generally derived from schists, basaltic, trachytic, and porphyritic rocks, and those for grinding and crushing foods are more or less composed of coarse lava and compact sandstones. Quite a number of the metate rubbing stones and a large number of the axes are composed of a very hard, heavy, and curiously mottled rock, a specimen of which was submitted to Dr. George W. Hawes, Curator of Mineralogy to the National Museum, for examination, and of which he says:

"This rock, which was so extensively employed by the Pueblo Indians for the manufacture of various utensils, has proved to be composed largely of quartz, intermingled with which is a fine, fibrous, radiated substance, the optical properties of which demonstrate it to be fibrolite. In addition, the rock is filled with minute crystals of octahedral form which are composed of magnetite, and scattered through the rock are minute yellow crystals of rutile. The red coloration which these specimens possess is due to thin films of hematite. The rock is therefore fibrolite schist, and from a lithological standpoint it is very interesting. The fibrolite imparts the toughness to the rock, which, I should judge, would increase its value for the purposes to which the Indians applied it."

The axes, hatchets, mauls, and other implements used for cutting, splitting, or piercing are generally more or less imperfect, worn, chipped, or otherwise injured. This condition is to be accounted for by the fact that they are all of ancient manufacture; an implement of this kind being rarely, if ever, made by the Indians at the present day. They are usually of a hard volcanic rock, not employed by the present inhabitants in the manufacture of implements. They have in most cases been collected from the ruins of the Mesa and Cliff dwellers, by whose ancestors they were probably made. I was unable to learn of a single instance in which one of these had been made by the modern Indians. In nearly all cases the edges, once sharp and used for cutting, splitting, or piercing, are much worn and blunt from use in pounding or other purposes than that for which they were originally intended. On more than one occasion I have observed a woman using the edge of a handsome stone axe in pulverizing volcanic rock to mix with clay for making pottery. Nearly all the edged stone implements are thus injured. Those showing the greatest perfection were either too small to utilize in this manner or had but recently been discovered when we obtained them.

The grinders and mortars are frequently found composed of softer

rock, either ferruginous sandstone or gritty clays. For a more complete knowledge of these stone implements we must depend on a comparative study of large collections from different localities, and such information as the circumstances attending their discovery may impart, rather than upon their present condition or the uses for which they are now employed.

Metates or grain-grinders, pestles and rubbing stones belong to the milling industry among the Indians. The metates are generally quite large and heavy, and could not well be transported with the limited means at the command of Indians. They are therefore well adapted to the uses of village Indians, who remain permanently in a place and prosecute agricultural pursuits. They are generally of rectangular shape, and from 10 to 20 inches in length by 6 to 12 in width, and are composed of various kinds of rock, the harder, coarse-grained kinds being preferable, though in some instances sandstone is employed; the most desirable stone is porous lava. These stones are sometimes carried with families of the Pueblos moving short distances to the valleys of streams in which they have farms in cultivation. In the permanent villages they are arranged in small rectangular bins (see Fig. 508), each about 20 inches wide and deep, the whole series ranging from 5 to 10 feet in length, according to the number of bins or divisions. The walls are usually of sandstone. In each compartment one of these metates or grinding stones is firmly set at a proper angle to make it convenient to the kneeling female grinder. In this arrangement of the slabs those of different degrees of texture are so placed as to produce an increased degree of fineness to the meal or flour as it is passed from one to the other. But a small number of these slabs were collected on account of their great weight. Accompanying these metates are long, slim, flat stones, which are rubbed up and down the slabs, thus crushing the grain. These hand-stones are worn longitudinally into various shapes; some have two flat sides, while the third side remains oval. The same variety exists in regard to the texture of these rubbing-stones, as in the concave grinders.

The pueblo of Zuñi, from which the most important portion of the collection was obtained, is situated in New Mexico, near the western border, about two hundred miles southwest from Santa Fé.

At the time of Coronado's visit to this country the pueblo was located at what is now known as "Old Zuñi," on the summit of a high *mesa*. The modern Zuñi is situated upon a knoll in the valley of the Zuñi River, about two miles from the site of the old town. Certain writers have regarded Zuñi, or rather "Old Zuñi," as one of the "Seven Cities of Cibola." The evidences found at and around both the old and present Zuñi are certainly not sufficient to warrant this view, and further and more careful investigations are necessary.

Zuñi, although lying on the line of travel of military expeditions, emigrant trains, and trade between the Pacific coast and the Rio Grande, the foreigners visiting them have seldom remained long in their village;

nor has the advancing wave of Caucasian settlement approached sufficiently near to exert any marked influence on their manners and customs; at least the form and decoration of their pottery bear no marked evidence of the influence of the more highly civilized races.

The collection made here by the expedition was more extensive than that from any other place, and numbers about fifteen hundred objects, of which by far the larger part is composed of earthenware articles. These include large and small water vases, canteens of various sizes and shapes, cooking cups, and pottery baskets used in their dances, paint-pots, ladles, water jugs, eating bowls, spoons, pepper and salt boxes, pitchers, bread-bowls, Navajo water jugs, treasure boxes, water vases, cups, cooking pots, skillets, ancient pottery, animals, and grotesque images. It belongs mostly to the variety of cream-white pottery, decorated in black and brown colors; a portion is red ware, with color decorations in black. There are also several pieces without ornamentation, and one or two pieces of black ware, but the latter were most probably obtained from other tribes, and possibly the same is true in reference to a few pieces of other kinds which present unusual figures or forms.

A slight glance at the figures depicted on the *tinajas*, or water vases, will suffice to show any one who has examined the older pottery of this region, specimens and fragments of which are found among the ruins, that a marked change has taken place in their ideas of beauty. Although the rigid, angular, zigzag, and geometric figures are yet found in their decorations, they have largely given way to curved lines, rounded figures, and attempts to represent natural objects.

A few apparently conventional figures are still generally retained, as around the outside of the necks of the vases and on the outer surface of the bowls, probably suggested originally by the rigid outlines of their arid country, and in fact by their buildings. The figure of the elk or deer is a very marked feature in the ornamentation of their white ware, and is often found under an arch. Another very common figure is that of a grotesquely-shaped bird, found also on the necks of water vases and the outer surface of bowls.

ARTICLES OF CLAY.

Tinajas, or water vases, are called in the Zuñi tongue *tkāh-wi-nā-kā-tēhl-le.* They are usually from 8 to 12 inches in height, and from 12 to 15 in diameter. A smaller size of the same form of vessels, which are from 5 to 7 inches in height and from 8 to 10 in diameter, are called *det-tsān-nā.* They are of three colors, cream white, polished red, and black:

there are in the collection comparatively few of the second, and but one of the last variety. The decorations are chiefly in black and brown, but four or five pieces being in black. The decorations of the cream-white group present some four general types—those represented by Figs. 359, 363, 364, and —, in which the uncolored circular space forms the distinguishing characteristic; those of which Fig. 360 may be considered a representative, of which type there are but two specimens in the collection; those represented by Fig. 361, and those distinguished by the rosette (see Figs. 366, 367, 368, and 370).

The following appear to be unique: (39935) Fig. 371, (40785) Fig. 375, (41149) Fig. 372, and (41167) Fig. 374.

By a careful study of these decorations we find that they consist chiefly of the following figures, which are combined in various ways: triangular figures, usually on the neck; large open circles, frequently in a diamond figure, as in Fig. 359 (39871); scrolls; or arches as in Figs. 361, 362, &c.

In no instance do we find the meander or Greek fret on these, or in fact any other Zuñi vessels. A marked characteristic of the decorations on the pottery of this pueblo is the absence of vines and floral figures so common on those of some of the other pueblos. The nearest approach to the vine is the double line of scrolls seen in (40785) Fig. 375. Although the checkered figure is common on bowls, the Zuñi artists have appreciated the fact that it would be out of place on the convex surface of the water vase. The elks or deer—for it is difficult to tell which are intended—are usually marked with a circular or crescent-shaped spot, in white, on the rump, and a red diamond placed over the region of the heart, with a line of the same color extending from it to the mouth, both margined with white; the head of the animal is always toward the right.

As will be observed by examining the decorated pieces, the surface is divided into zones by lines—sometimes single, sometimes double, but generally slender—one near the base, one or two around the middle, one at the shoulder, and one at the rim; thus forming one zone embracing the neck, and two or three on the body, exclusive of the undecorated base. Sometimes there is but one zone on the body as seen in Figs. 364 (40322) and 359 (39871); sometimes two, as shown in Figs. 367 (40317) and 370 (41146); but often three, the middle one quite narrow, as seen in Figs. 361 (39934) and 362 (41150). Although not always shown in the figures, the lines at the rim, shoulder, and bottom are seldom wanting in Zuñi vases. The zones are often interrupted by broad perpendicular stripes or inclosed spaces in which circles, scroll figures, or rosettes are inserted.

Measurements of these vessels show considerable uniformity of proportion, the widely exceptional specimens being also exceptional in decorations. As indicating size and proportion I give here the measurements of some typical as well as some abnormal specimens.

The figures show the height, the diameter of the body at the widest part, and the diameter of the mouth in inches.

Number.	Height.	Diameter of body.	Diameter of mouth.
1	8.25	12.00	6.75
2	10.25	13.75	7.50
3	11.00	13.25	7.15
4	12.00	14.50	8.50
5	10.75	14.50	8.25
6	11.00	13.00	8.00
7	7.25	10.00	5.00
8	7.00	9.25	5.40
9	4.25	6.75	4.60
10	4.40	5.50	3.75
11	3.50	4 50	3.25
12	3.50	4.25	2.90
13	7.75	8.00	5.75
14	9.00	9.75	6.50

If we reduce these to proportion, using the diameter of body as the unit of measurement, the result is as follows:

Number.	Height.	Diameter of mouth.	Number.	Height.	Diameter of mouth.
1	.69	.56	8	.81	.59
2	.75	.54	9	.63	.68
3	.83	.54	10	.80	.68
4	.81	.58	11	.78	.72
5	.74	.57	12	.82	.68
6	.84	.61	13	.97	.72
7	.72	.50	14	.91	.67

From this it will be seen that No. 148, which is represented by Fig. 373 (39774), is unusually broad in proportion to the height. Nos. 152 and 153 vary to the extreme in the other direction; No. 153 is shown in Fig. 364 (40322). Excluding these and taking the means of the large and small kinds separately we find the average ratios to be as follows:

	Height.	Diameter of mouth.
Large	.78	.57
Small	.78	.61

Most of the water jugs of both the Shinumos and Zuñians are in the form of canteens, usually more or less spherical, and varying in capacity from a pint to four gallons. On each side there is a small handle in the form of a loop or knob, through or around which is placed a small shawl or strip of cloth, or a cord long enough to pass over the forehead so as to suspend the vessel against the back just below the shoulders. The other jugs are of various fanciful shapes, which will be noted in the catalogue. A large portion are of plain brown ware, a few plain white, and others white with colored decorations. Various names are used apparently to designate the different kinds rather than the uses for which they are intended.

The decorations, when present, are always on the upper side, which

is more convex than the lower, or side on which it is intended the vessel shall lie when not in use. In the ornamented white ware the lower portion is usually red or brown.

As all these clay fabrics are the work of North American Indians, it is scarcely necessary for me to say that they are unglazed, a characteristic, so far as I am aware, of all aboriginal pottery.

Some of the specimens, especially of the black ware, show a smooth finish, and may perhaps, without violence to the term, be classed as lustrous. This is not the effect of a varnish or partial glazing, but is a polish produced generally, if not always, by rubbing with a polishing stone.

Although, as a rule, the paste of which the ware is made is comparatively free from foreign matter, yet many pieces, especially of the decorated ware, when broken, show little whitish or ash-colored specks. These, when found in aboriginal pottery east of the Mississippi, have, I believe, been without question considered as fragments or particles of shell broken up and mixed with the paste. This may be correct in reference to the pottery found east of and in the Mississippi Valley, but this whitish and grayish matter in the pottery of the Indians of New Mexico and Arizona is in most cases pulverized pottery, which is crushed and mixed with the paste. Black lava is sometimes crushed and used in the same manner.

The principal material used is a clay, apparently in its natural state, varying in color according to locality. Although comparatively free from pebbles or lumps of foreign matter, we detect in some of the coarser specimens small particles of mica and grains of other materials, and in one broken specimen the elytron of a small coleopterous insect. But as a general rule, the paste appears to have been free from foreign matter.

A slight glance at this large collection is sufficient to show that the potters worked by no specific rule, and that they did not use patterns. While it is apparent that only a few general forms were adopted, and that, with few exceptions, the entire collection may be grouped by these, yet no two specimens are exactly alike; they differ in size, or vary more or less in form. The same thing is also true in reference to the ornamentation: while there is a striking similarity in general characteristics, there is an endless variety in details. No two similar pieces can be found bearing precisely the same ornamental pattern.

Much the larger portion of the collection consists of vessels of various kinds, such as bowls, cooking utensils, canteens, bottles, jars, pitchers, cups, ladles, jugs, water vases, ornamental vessels, paint-pots, &c. These vary in size from the large vase, capable of holding ten gallons, to the little cup and canteen, which will contain less than half a pint. The other and much smaller portion includes all those articles which cannot be classed as vessels, such as images, toys, toilet articles, representations of animals, &c. The collection can perhaps be most satis-

factorily classified by reference to the coloring, ornamentation, and quality, thus:

1. *The red or uncolored pottery*, which is without ornamentation of any kind. Some of this is coarse and rough, and in this case always more than ordinarily thick; but the larger portion has the surface smooth and often polished. The color varies from the natural dull leaden hue of the clay, to a bright brick red, the latter largely predominating.

2. *The brown ware*, or that which shows an admixture of mica. This, although uniformly without color decorations, is occasionally marked with impressed figures and lines. Although inferior in quality, being coarse and fragile, it presents more symmetrical though less varied forms than are usually found in the preceding group. The influence of contact with the European races is here very apparent, as, for example, in the true pitcher and other common utensils and an apparent attempt at glazing.

3. *The black ware* which is without ornamentation. This variety in quality and character is precisely like the polished red of the first group; but is slightly in advance of that in regard to finish, and perhaps, as heretofore remarked, may be classed as lustrous, while the red may be classed as semi-lustrous. The paste of which this black ware is formed appears to have been better prepared than that of the preceding varieties, and is the hardest and firmest in the collection.

4. *The cream-white pottery decorated in colors.* This extensive group, which includes fully two-thirds of the entire collection, embraces almost every known form of earthenware manufactured by the tribes from whom it was obtained. The paste of which it is formed is similar in character to that of the black ware. When broken the fracture shows very distinctly the effect of burning, the interior being of the natural leaden color, shading off to a dull grayish white as it approaches the outer surface. The opaque or creamy-white color of the surface is produced by a coating of opaque whitewash. Upon this white surface the figures are afterwards drawn.

The only colors used in decorating pottery are black, red, and some shade of brown. But of this we will speak more fully when we come to describe the peculiar methods practiced by the different tribes in making and adorning pottery.

Although there is a strong general similarity in this colored ornamentation, the great variety of details renders it difficult to classify the figures so as to convey a correct idea of them to the reader. We shall therefore have to refer him to the numerous cuts and the colored plates which have been introduced for the purpose of illustrating the catalogue.

The following general statement is about all that can be said in reference to them before descending to specific details.

So far as the coloring is concerned they are of two kinds, those having

the figures wholly black, and those which are partly black and partly brown or red. The differences in the decorated pottery appear to be always accompanied by certain other variations sufficient to warrant speaking of them as different varieties or groups. The former (those having the figures wholly black), which are made of the ordinary plastic blue clay, have only the upper half or two-thirds of the body of the vessel overlaid with the white coating for receiving the decorations, the lower part being uncoated, and of the natural pale red or salmon color produced by burning, but usually well polished. As additional distinguishing features of this group we notice that the shape is more generally globular, the workmanship rather superior, and the pottery somewhat harder and less friable than that of the other group; the angular and geometrical figures formed by straight lines are more common in this group; here we also find the meander or Greek fret correctly drawn, the vine, and several other designs rarely or never found in the other group. The figures of animals, which are common to both varieties, are in the former more usually distributed in zones or groups, while in the latter they are generally placed singly in inclosed spaces. The latter variety, in which we see the curve freely used, shows an evident advance over the ornamentation of the older pottery of this region; and while the figures must be classed as rude, and the outlines are less sharp, and not so well defined as in the older specimens, yet they indicate clearly a mental advance in the greater variety of conception.

The figures of this entire class, as regards forms, may be grouped under three general headings: first, the geometrical, which is the most common; second, the figures of animals; and, third, rude attempts at floral decorations, which forms are rather rare. Strange to say, in but few instances can any attempt at representing the human form or any part of it be discovered in these color decorations.

The geometric figures present an endless variety; but we notice, as is shown by the cuts and plates, that triangles with an elongate acuminate apex and the zigzag are very common in the black-brown decorations. The checkered figure also is not uncommon. The animals most frequently represented are the elk or deer and birds. The floral decorations are chiefly vines well drawn, and rude attempts at representing trees, and the flowers of various species of *Helianthus*.

5. *Red ware with color decorations.* This ware is represented by but few vessels, which are in every respect similar to the best variety of the red pottery heretofore mentioned, except that it is marked with figures in black, many of which are decorated only on the upper portions around the neck or rim.

6. *The ancient pottery*, of which Figs. 680 (40816) and 693 (40817) are good examples.

The Pueblo tribes of New Mexico and Arizona, with rare exceptions, manufacture earthenware vessels for domestic use. The Pueblo of Taos may be mentioned as one of these exceptions; although the manner of

living, the general habits, and characteristics of the tribe are similar to those of the other Pueblo Indians, and although they make use of pottery for domestic purposes, they do not manufacture it. Some pieces, such as water jars and vessels used for cooking, are made in the village, but this occurs only in such families as have intermarried with other tribes where the manufacture of the native ware is carried on.

The Pueblos among whom the manufacture of pottery or earthenware utensils may be classed as a conspicuous feature of their peculiar civilization at the present time, are situated geographically as follows: San Juan, Santa Clara, San Ildefonso, Cochiti, Santo Domingo, San Felipe, Sandia, and Isleta, located on the Rio Grande; Pojake, Tesuke, Nambe, Jamez, Zia or Silla, Santa Ana, Laguna, and Acoma, situated on the tributaries of the Rio Grande; Zuñi, and some small pueblos of the same tribe all within the borders of New Mexico. Zuñi however is located on the Rio Zuñi, which flows into the Little Colorado River.

The Moki pueblos, numbering seven in all, are embraced in what is called the Province of Tusyan, and are located within the Territory of Arizona, near its northeastern corner.

The Zuñians and Shinumos, although situated farther from civilized people and less influenced by their usages than any of the other Indians mentioned, surpass all the other tribes in the manufacture of all kinds of earthenware. The collections made from these tribes, as will be seen by reference to the catalogue, exceed, both in number and variety, those from all the others combined. The collection as enumerated in the catalogue includes specimens from all the pueblos referred to.

Although the uses of these articles are to a great extent the same among all the Pueblo tribes, and the shapes and forms are apparently similar, yet to the experienced eye there is no difficulty in detecting the peculiarities which distinguish one from the other, or at least in assigning them to the tribes with which they originated.

It will be observed by reference both to the colored and wood-cut illustrations that there are special distinctions between the ornamentation of the pottery of the pueblos of the Rio Grande Valley and of those situated on the tributaries of the Rio Colorado. In the decorations of the former the birds and vine are conspicuous and constantly recurring features, while in the Zuñi and Shinumo pottery the elk, domestic animals, and birds peculiar to these arid regions are the figures most frequently used. The difference is easily accounted for when we are informed of the fact that the former tribes reside in the valley of the Rio Grande, which is well adapted to the culture of the grape as well as other crops. The ever-present vine and the numerous birds which flock to this fertile valley will naturally suggest figures for decoration. On the other hand, the Zuñians and Shinumos reside in regions almost destitute of water, and hence without any attractive vegetation; therefore their designs are drawn chiefly from the sharp outlines of their dwellings, their domestic animals, birds, and the elk and antelope that graze in the little

grassy oases. None of these are actually drawn from nature, but from imagination and memory, as they never have an object before them in molding or painting.

In none of the cases referred to do we observe any attempts to imitate the exact forms or ceramic designs of the so-called ancient pottery, fragments and sometimes entire vessels of which are found throughout this southwestern region. This seems strange from the fact that in the use of stone implements we find but few which are the result of their own handiwork. The old ruins are searched, and from them, and the *débris* about them, stone pestles, mortars, hammers, hatchets, rubbing stones, scrapers, picks, spear and arrow heads, and polishing stones are collected by the inhabitants of nearly all the pueblos, and are kept and used by them.

The clay mostly used by the Zuñians in the manufacture of pottery is a dark, bluish, carbonaceous, clayey shale found in layers usually near the tops of the mesas. Several of these elevated mesas are situated near Zuñi, from which the natives obtain this material. This carbonaceous clay is first mixed with water and then kneaded as a baker kneads dough until it reaches the proper consistency; with this, crushed volcanic lava is sometimes mixed; but the Zuñians more frequently pulverize fragments of broken pottery, which have been preserved for this purpose. This seems to prevent explosion, cracking, or fracture by rendering the paste sufficiently porous to allow the heat to pass through without injurious effect. When the clayey dough is ready to be used a sufficient quantity is rolled into a ball. The dough, if worked by a careful artist, is first tested as to its fitness for molding by putting a piece of the paste to the tongue, the sensitiveness of which is such as to detect any gritty substance or particles, when the fingers fail to do so. The ball is hollowed out with the fingers into the shape of a bowl (this form constituting the foundation for all varieties of earthenware) and assumes the desired form by the addition of strips of the clay; all traces of the addition of each strip are removed before another is added, by the use of a small trowel fashioned from a piece of gourd or fragment of pottery, the only tool employed in the manufacture of pottery.

The bottoms of old water jars and bowls form stands for the articles while being worked by the potter. The bowls are filled with sand when objects of a globular form are to be made. Although I have often watched the process, yet in no instance have I ever observed the use of a potter's wheel, measuring instrument, or model of any kind. The makers, who are always females, depend entirely on memory and skill derived from practice to accomplish their work. The vessels when completely formed are laid in some convenient place to sun-dry. A paint or solution is then made, either of a fine white calcareous earth, consisting mainly of carbonate of lime, or of a milk-white indurated clay, almost wholly insoluble in acids, and apparently derived from decomposed feldspar with a small proportion of mica. This solution is applied to

the surface of the vessel and allowed to dry; it is then ready for the decorations.

The pigments from which the paints are derived for decorative purposes are also found in the vicinity of the mesas, and are employed by the Indians in the production of two colors, each of which varies slightly according to the intensity of heat in the process of baking, or the manner in which it is applied. One varies from a black to a blackish-brown, the other from a light brick red to a dark dull red color. The material which produces these colors is generally found in a hard, stony condition, and is ground in a small stone mortar, just as we reduce India ink for use. When the pigment is properly reduced, and mixed with water so as to form a thin solution, it is applied with brushes made of the leaves of the yucca. These brushes are made of flat pieces of the leaf, which are stripped off and bruised at one end, and are of different sizes adapted to the coarse or fine lines the artist may wish to draw. In this manner all the decorations on the pottery are produced.

The substance used in producing the black ware is a clayey brown hematite, or ferruginous indurated clay, quite hard. The material used to produce the red or brown colors is a yellowish impure clay, colored from oxide of iron; indeed it is mainly clay, but contains some sand and a very small amount of carbonate of lime. These are the principal ingredients and methods involved in the manufacture of Zuñi pottery.

The method practiced by the Zuñians in baking pottery differs somewhat from that employed by the tribes who make quantities of black and red ware. It seems to be a necessity on the part of the Zuñians to observe the greatest care in this operation. Their pottery is nearly all decorated and must be baked free from contact with the peculiar fuel used for that purpose. During the baking process it sometimes happens that a piece of the fuel, which is composed of dried manure carefully built up oven-shaped around the vessels to be baked, falls against the vessel. In every such instance a carbonized or smoky spot is left on the jar or bowl, which is regarded by the Indians as a blemish. The kiln is carefully watched until the fuel is thoroughly burnt to a white ash, when the vessels can be removed without danger of such blemishes.

The mode of manufacturing pottery adopted at the pueblos of the Rio Grande Valley is quite similar to that described as practiced by the Zuñi, Shinumo, Acoma, and Laguna Indians, but there is considerable difference in the method of decorating and polishing. Polishing is practiced chiefly by the Indians of the eastern pueblos, and but little by those of the more western region.

The pueblos of Santa Clara, Cochiti, San Juan, Tesuke, &c., manufacture large quantities of pottery for sale in addition to that made for their own use. It is in these eastern pueblos that the black polished ware is chiefly found, and it is in the production of this class of ware that the chief difference in the ceramic art between the two sections exists. The clays used in the manufacture of this ware are of the same

character as those of which the other is made; the paste is prepared in the same way, so that when the vessels are formed and ready for the kiln they are of the color of the original clay. In other words, the change to the black color is not produced in making the paste or in moulding or forming the vessel, but during the process of baking. The manner of forming the vessel is the same as with the western tribes; and when formed it is dried in the sun in the same way; after this a solution of very fine ochre-colored clay is applied to the outside and inside near the top, or to such parts of the surface as are to be polished. While this solution thus applied is still moist, the process of polishing begins by rubbing the parts thus washed with smooth, fine-grained stones until quite dry and glossy. The parts thus rubbed still retain the original red color of the clay. The vessels are again placed in the sun and allowed to become thoroughly dry, when they are ready for baking. It is in this part of the process that the great differences in color are produced. The vessels are placed together in a heap on a level spot of ground and carefully covered over with coarsely broken dried manure obtained from the corrals. The kiln thus formed is then ignited at several points.

It is proper to add here that the clays used by the Santa Clara Indians are of a brick-red color, containing an admixture of very fine sand, which, no doubt, prevents cracking in burning, and hence dispenses with the necessity of using lava or pottery fragments, as is the custom of the Indians of the western pueblos. The burning is carried on until a sufficient degree of heat is obtained properly to bake the vessels, which still retain their original red brick color. At this juncture such of the vessels as it is desired have remain in that condition are removed from the fire and allowed to cool, when they are ready for use. Those which the artists intend to color black are allowed to remain and another application of fuel, finely pulverized, is made, completely covering and smothering the fire. This produces a dense, dark smoke, a portion of which is absorbed by the baking vessels and gives them the desired black color. It is in this manner that the black ware of these eastern pueblos is produced.

It is said that among the Cochiti, Santa Clara, and some other Pueblos a vegetable matter is employed to produce some of their decorative designs; this, however, I was unable to verify, though some of the Indians assured me of the fact, and furnished me a bunch of the plant, which Dr. Vasey, of the Agricultural Department, found to be *Cleome integrifolia*, a plant common throughout the Western Territories. A few specimens of the ware, some burnt and some unburnt, said to be decorated with the oil or juice of this plant were secured.

As heretofore remarked, notwithstanding the variety in ornamentation, there are really but few different figures, and these are mostly quite simple. Any one interested in the study of Indian art can find in the

figures and plates of this catalogue all the original conceptions of the artists of the Pueblo Indians as depicted by them.

While it is of value in the study of ethnology, and as affording a means of comparison in the study of archæology, there is nothing in the composition or ornamentation, or in the form of the vessels, that ceramic artists of the civilized races would desire to copy.

As a means of reference in the study of ancient American pottery, I consider the collection invaluable, as it can scarcely be possible that the forms and decorations contain nothing that has been handed down from a former age. Although the figures used have no symbolic characters connected with them in the mind of the modern artist, yet it is more than probable that at least some of them did have such a meaning to the ancient artists. For example, the little tadpole-shaped figure on the clay baskets used in their dances and sacred ceremonies by the Zuñians is understood by them to represent a little water articulate, which, as heretofore stated, is probably the larva of some insect or crustacean, very common in the pools and sluggish streams of the country inhabited by these Indians. Now, it is possible that this figure has been used with the same meaning from time immemorial, but I find, as pointed out to me by Prof. Cyrus Thomas, that almost exactly the same figure is on a vessel pictured on Plate VII of the manuscript Troano, where a religious ceremony of some kind is evidently represented. The same figure is also found in Landa's character for the Maya day *Cib*, a word signifying copal, a gum or resin formerly used in religious ceremonies as incense. I find also on Plate XXXV of the same manuscript the figures of bowls or pots with legs similar to those of the Zuñi. I do not point out these resemblances as proof of any relation between the two races, but as mere illustrations of what possibly may be learned by a careful study of the forms and decorations of this pottery. It may also be well to add here another fact to which Professor Thomas calls my attention, viz., the similarity between the manner of wearing the hair by the Shinumo women, *i. e.*, in knots at the side, as represented by the female images, and that of the ancient Maya women, as shown in numerous figures on the manuscript Troano. Any one familiar with General Cesnola's collection from Cyprus cannot fail to be reminded of it when he examines this collection of Indian pottery; especially the colors used and the general character of the specimens; but an inspection of the two collections is necessary in order to have this general resemblance brought to mind, as it does not appear so distinctly on a comparison of the published figures only. The figures on Plate XLIV of his "Cyprus" bear quite a striking resemblance to those on some specimens of Cochiti ware. The quadruple cup, Fig. 25, page 406, is almost exactly like the Zuñi quadruple cups, and was probably used for the same purpose. The same type of multiple cups is also shown in Plate IX of the same work. The two tea-pot-like vessels represented on Plate VIII, as well as the two bird-shaped pieces on the same

plate, are much like the similar vessels of Cochiti pottery, several of which are figured in this catalogue.

The resemblance of this Indian ware, in the form of the vessels, to that found in the ancient mounds of this country is so marked that it is scarcely necessary to remind the reader of the fact, but it may be well to call attention to the much larger proportion of water vessels among the Indian pottery than is seen in collections from the mounds. This, however, may perhaps be accounted for by the scarcity of water in the western region.

The custom of the Zuñi artists of making a diamond or triangle over the region of the heart of the elk and deer figures with a line running to the mouth, although somewhat singular, is quite consistent with the Indian practice of symbolic writing. I was informed by the Zuñi Indians that it was intended to denote that "the mouth speaks from the heart." A similar mark occurs in the decoration of the vase figured in Cesnola's "Cyprus," page 268.

Contemporaneous and somewhat closely related tribes may use widely different figures in the decoration of their ware, and hence it is unsafe, in studying ancient specimens, to draw hasty conclusions from slight differences in this respect; and I think I may also safely add that a comparatively short period of time, a century or so at most, may suffice to bring about a great change in the same tribe in the form and manner of decorating their pottery. It also shows us that the ware of a given tribe, which does not bear the impress of civilized influence, can, by a careful study, be distinguished in nearly all cases from that of any other tribe. I feel so confident of the truth of this statement, that I would not hesitate to undertake to pick out all pieces of Zuñi ornamented ware from a collection of thousands of specimens of modern Pueblo Indian pottery if indiscriminately mixed together.

The Shinumo pottery in general appearance and form bears a strong resemblance to that of Zuñi; in fact it is almost impossible to separate the ornamented bowls and water vases of the two if mingled together. There are certain figures found in the one which never occur in the other, but there are a number of designs, especially of those most generally seen, that are quite commou to the pottery of both tribes.

The different varieties of ware, the red or brown without decorations, the white with decorations, and the black are in general use with the tribe, and specimens of each are contained in the collection. But few specimens of the purely micaceous ware are found, either in Zuñi or Wolpi.

The preponderance of the large round water jugs in the Shinumo collection over that of Zuñi is noticeable. This form of vessel seems to be more in use by tribes whose villages are quite remote from water or which are situated on high mesas difficult of access. The kinds of vessels, however, which are common with the Zuñians are also common with the Shinumos, and those intended for the same use are generally of the same

shape or similar in form. But, as with the decorations, there are also vessels so markedly distinct and variant from those we find at Zuñi as to show very readily at least tribal distinctions between the ceramic artists and manufacturers.

The proximity of Laguna to Acoma led us to anticipate what we afterward found, viz., a great similarity in the forms of their vessels, and also in their manner of ornamentation. The principal differences consist in the more profuse use of the forms of birds and flowers, the first evidently representing prairie grouse and the last some form of sunflower. There is an absence of the geometrical forms, of lines and angles commonly observed on the works of more distant pueblos.

Quite a number of animal representations, made hollow for use as drinking vessels, were obtained, displaying grotesquely imitative forms of deer, elk, sheep, big-horn, antelope, and other animals with which they are familiar. All of these objects have more color laid on them than is to be found on the pottery of their neighbors of Acoma, the birds and animals being painted in a light rufous fawn color not in use elsewhere, and the only instance of the employment of green is on a tinaja of this pueblo used in coloring some foilage.

VEGETAL SUBSTANCES.

This class of ware comprises a very diversified group of objects; indeed, so great is the variety that I will not attempt a general description of them. Specific reference will be made to the objects as they occur in their places in the catalogue.

The objects of basketry or wicker-work are quite varied in form, construction, and decoration. Those made by the Zuñi Indians are so rude and coarse as not to entitle them to any merit. The larger baskets made by this tribe are used for carrying corn, melons, peppers, &c. The smaller are used for holding beans, shelled corn, and other coarse small materials.

The basketry of the Shinumos is of a finer and more finished quality. Among these are many jug or canteen shaped baskets, from which, no doubt, many of the forms of their pottery water vessels have been copied. These are sometimes globular, with large round bodies and small necks. They are generally very closely woven and are then coated over with a resin or gum which renders them capable of holding water. Like some of their water jugs, in pottery, they have small horse-hair ears or loops attached to the sides through which strings are passed for carrying them either over the head or shoulder. This class of water jug basketry all show evidences of age, and it is possible that they were manufactured by the Apaches or other tribes skilled in the art. The

flat kinds are designed to hold fine grain and meal, and are also frequently used for winnowing. This is done by placing a small quantity of grain in the basket, and by a skillful motion throwing the grain up into the wind and again catching it as it comes down. This motion is kept up until the wind has separated the chaff from the grain. Many of the flat baskets are decorated in colors, as will be seen by the accompanying illustrations.

It is quite probable that most of the finer ware of this class is manufactured by the Apache Indians, who are celebrated for this work, and finds its way among the Pueblos through the medium of barter.

The basketry of the Zuñians is usually made of small round willows and the stem of the yucca, the leaves of which attain a long slender growth in that region. It is quite certain that the basketry used for holding water is not manufactured by the Zuñians, and probably not by the Shinumos, though many are found with them.

As previously stated, the basketry manufactured by the Shinumo Indians is of a more finished class and of a greater variety than that made and used by any of the other Pueblos, as will be seen by reference to the accompanying illustrations. Among the examples of this ware, obtained at Wolpi, is a large number of the flat or saucer-shaped kind; these vary both in size and character of construction as well as decoration. The manner of making one form of this class is quite interesting as well as curious. A rope-like withe of the fiber of the yucca, made quite fine, is wrapped with flat strips of the same plant. In forming the basket with this rope the workman commences at the center, or bottom, and coils the rope round, attaching it by a method of weaving, until, by successive layers of the rope, it attains the desired dimensions. These are quite highly and prettily ornamented in black, white, and yellow, and are compact and strong. Another variety of baskets of similar shape and size, and also fancifully ornamented, was obtained from the same Indians. These are made from small round willows. They exhibit less skill in construction, but are handsomely ornamented. Another kind was also obtained from the Shinumos, which, however, are attributed to the Apaches and probably found their way into the Moki villages through trade. These are large bowl-shaped baskets, almost watertight, but generally used as flour and meal baskets. They are also ornamented black and yellow, produced by weaving the material of different colors together while making the basket.

There are many other forms and varieties, which will be referred to at the proper time, as they occur in the catalogue.

The Pueblos employ a variety of plants and herbs for medicinal and dyeing purposes, some of which were collected. Their botanical names were not determined, but they are indigenous to the regions inhabited by the Indians using them.

Ornaments and musical instruments employed in dances and religious ceremonies do not differ much among the Pueblo Indians; the princi-

pal ones being the drum, rattle, notched sticks, a kind of fife, and a turtle-shell rattle. The latter instrument is the shell of a turtle, around the edges of which the toes of goats and calves are attached; this produces a very peculiar rattling sound. The shell is usually attached to the leg near the knee.

COLLECTIONS FROM ZUÑI.

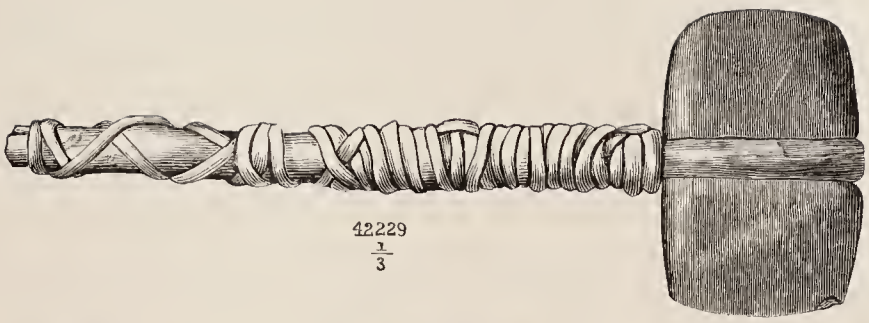
ARTICLES OF STONE.

AXES, HAMMERS, AND MAULS.

1. (40139). Flat rubbing or grinding stone of silicified wood.
2. (40551). Stone axe, *ō'-lā-ki-le*, with groove near the larger end.
3. (40552). Imperfectly-made stone axe, *ō'-lā-ki-le*, grooved at each edge; basalt.
4. (40553). Large axe, with groove around the middle; sandstone.
5. (40554). Axe, grooved at the middle, square and flat on top; basalt.
6. (40555). Small centrally-grooved axe; schistose rock.
7. (40556). Axe, grooved in the middle.
8. (40557). Axe, grooved near the blunt end, which is shaped similarly to the edge.
9. (40558). Axe, grooved near the end.
10. (40559). Small hatchet, *ō'-lā-ki-le*, of basalt doubly grooved, edge beveled from both sides, hammer end about one and a half inches in diameter.
11. (40560). Grooved axe, *ō'-lā-ki-le*, of fine black basalt, well polished; groove well worn. The face or side is intended to be near the holder when in use. Fig. 352. This specimen was found in Arizona, near Camp Apache, and was presented by Mrs. George P. Buell. It is one of the largest in the collection with such perfect finish.
12. (40561). Grooved in the center; of porous basalt.
13. (40562). Hammer grooved in the center, rounded off at each end.
14. (40563). Small hatchet-shaped instrument, square at the back, and rounded at the front edge.
15. (40563a). Rudely-made axe, grooved near the blunt end.
16. (40564). Small axe, with a groove round the body quite near the blunt end; basalt.
17. (40565). Axe, three and a half inches long.
18. (40566). Quite small, probably a hatchet, of firm basalt, grooved near the hammer end.
19. (40567). Much larger than the last, basaltic; groove quite deep and smooth, hammer end circular, large, and blunt.
20. (40568). Grooved axe of quartzitic rock.
21. (40569). Pick-shaped axe, grooved entirely around, with imperfect depressions which were in the water-worn boulder from which it was made; about six inches in length.
22. (40570). Boulder of sandstone with groove near the middle.
23. (40571). Flat basaltic boulder, grooved near the center, straight on the back, and tapering above and below the groove.

24. (40572). Small basaltic hammer and axe with groove near the large end.
25. (40573). Small grooved axe composed of hard sandstone; hammer end large, edge quite perfect.
26. (40574). Small boulder of basalt, ground to an edge at one end and rounded off at the other; doubly grooved.
27. (40575). Large basaltic stone considerably chipped off from pounding hard substances, grooved near the center, both ends quite blunt; probably used as a pounding stone.
28. (40576). Flat basaltic boulder, used as a pounder.
29. (40577). Basaltic hatchet grooved in the middle; quite rough.
30. (40578). Grooved axe of a very heavy, solid character, apparently designed more for mauling than cutting.
31. (40579). Large, heavy basaltic hammer and axe with groove around the body near the hammer end; about seven inches long.
32. (40580). Axe, grooved in the middle, upper or hammer end unusually long in proportion to the size.
33. (40581). Flat axe made from a water-worn boulder, oval in outline, both edges designed for cutting or splitting. Deep groove encircling the body, with protrusions above and below it to prevent the handle from slipping out; greenstone.
34. (40582). Hard, fine-grained sandstone axe wedge-shaped, without a groove.
35. (40583). Grooved axe with round body.
36. (40584). Fig. 349. Axe with a broad, shallow groove near the upper end, which is much narrower and smaller than the lower; of mottled volcanic rock, white, green, and black.
37. (40585). Axe grooved in the middle, irregular in shape, and much chipped off at the lower edge and rounded off at the top.
38. (40806). Made from a very fine, hard metamorphic rock, small enough to be classed as a hatchet; crescent-shaped at the top.
39. (40703). Fig. 348. A very dark brown axe, speckled with reddish spots. This axe bears a much finer polish than most of those in the collection.
40. (40704). Axe, grooved near the upper end, which is cone-shaped.
41. (40705). An almost square axe of basaltic rock, grooved on the sides, flat on top.
42. (40706). Axe of quartzitic rock, flat and thin; grooved.
43. (40900). Long, narrow axe, grooved near the upper end.
44. (40901). Axe, made from a water-worn boulder, almost to its present shape.
45. (40902). Small, round axe of basalt, having a shallow groove near the larger end.
46. (40903). Grooved basaltic axe.
47. (40904). Maul, with rough surface, one side flat, the other convex, with a groove.

Fig. 347

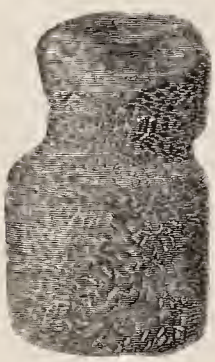


42229
1/3

Fig. 348

40703
1/3

Fig. 349



40584
1/3

Fig. 350

39903
(1/3)

Fig. 351

42205
(1/3)

Fig. 352

40560
1/3

Figs. 347–352.—Zuñi Grooved Axes.

48. (40258). Double-grooved axe of porphyry, well polished and quite perfect.
49. (41260). Grooved axe of compact sandstone; wedge-shaped.
50. (42204). Stone maul of basalt, with groove; very rough.
51. (42205). Grooved axe of basalt. Fig. 351. This specimen was obtained at Fort Wingate, in New Mexico, but was probably found in or around some of the ruins.
52. (42229). This is one of the finest specimens in the collection, and, as shown by the cut, Fig. 347, has the handle attached, ready for use. This is formed of a willow withe bent round the axe and doubled, extending out far enough to form a handle and wrapped with a buckskin string; of compact basalt.
53. (42230). Shallow-grooved axe of basalt.
54. (42231). Axe, with a shallow groove near the larger end.
55. (42232). Axe of basalt, grooved on the sides.
56. (42233). Grooved axe, in size and shape the same as (42226).
57. (42234). Grooved axe of a peculiar black mottled rock, with white, marble-like streaks through it; groove surrounding it in the center.
58. (42235). Irregularly-shaped axe with a wide and deep groove surrounding it, curiously mottled with reddish and green streaks. Specimens of this kind are quite rare.
59. (42236). Grooved axe; sides well polished and exhibiting peculiar reddish spots.
60. (42237). Small grooved axe of metamorphic rock.
61. (42238). Grooved axe.
62. (42239). Small grooved axe of schistose rock, much flaked off at each end.
63. (42240). Axe, grooved on three sides; similar in size and shape to (42223).
64. (42241). Grooved axe with flattened top.
65. (42242). Same as the preceding.
66. (42242). Grooved axe with two edges.
67. (42244). Celt-shaped axe of basalt; it appears to have been used as a rubbing stone.
68. (39869). Zuñi maul with circular groove around the centre, used generally for grinding or pounding soft foods, such as red-pepper pods; of porous lava.
69. (39903). Double-edged axe, *ō′-lā-ki-le*, with groove around the middle; volcanic rock, from Zuñi. See Fig. 350.
70. (42349). Rounded end of a sandstone metate grinder converted into a flat hammer by grooving it at the opposite edges.
71. (41291). Pounder of sandstone. It was originally a common axe. Thumb and finger depression on the sides.
72. (40871). Lava Chili pounder with cap-shaped ends; grooved.
73. (40906). Lava rock pounder; small.

METATES, OR GRAIN-GRINDERS, AND PESTLES.

74. (40870). Square red sandstone metate.

75. (42280). Flat sandstone grinding slab.

76–82. The following numbers represent the rubbers accompanying the metates. The Indian name is *yä'-lĭn-ne*: 76, (40909); 77, (40910); 78, (40911); 79, (40912); 80, (40913); 81, (40914); 82, (41259); sandstone rubber.

MORTARS, PESTLES, ETC.

These are found in use at all the pueblos, but are more common in Zuñi and the Moki villages than elsewhere, as these Indians use mineral pigments more extensively and in greater variety than any of the others.

The pestles and mortars obtained from these tribes are all too small to be used for any other purpose than grinding pigments. Many of them appear to be quite old, and were probably handed down from distant ancestors, or obtained from the ruins. Some of them are evidently of modern manufacture.

83. (40707). Mortar; a round, flat, quartzitic boulder with round cavity on one side about one inch in diameter and half an inch deep, and a square depression on the other about an inch deep and two inches in width; indigo still clinging to the surface of the depression.

84. (40708). Mortar of quartzite, the body nearly square and flat; depression round and about four inches in diameter, quite shallow.

85. (40709). Mortar of coarse-grained sandstone, almost perfectly round, the cavity quite deep, and lined with red ochre or vermilion.

86. (40710). Mortar of a flat sandstone with irregular rim about four inches in diameter.

87. (40711). Paint mortar of a small round quartz boulder.

88. (40712). Mortar of fine-grained sandstone about six inches long by three wide; sides square. This mortar was in use by the Zuñians for the purpose of grinding a pigment of yellowish impure clay, colored by the oxide of iron, with which they decorate their pottery, and which produces the brown and reddish-brown colors.

89. (40713). Small mortar of sandstone.

90. (40714). Mortar made from a flat water-worn quartz boulder with a circular depression about half an inch deep. The bottom of this mortar shows evidence of its having been used as a grinding stone previous to being converted into a mortar, or it may have been used for both purposes, as both the paint cavity and the rubbing side show recent use.

91. (40715). Paint mortar of basalt, used for grinding the yellow pigment for ornamenting pottery; about four inches in diameter, cavity about one inch deep, bottom ground flat.

92. (40716). Flat paint mortar, of quartz rock, almost round, about an inch thick, depression quite shallow; used for grinding a pigment

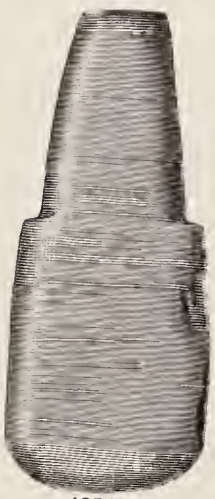
Fig. 353

40731
(1/3)

Fig. 354

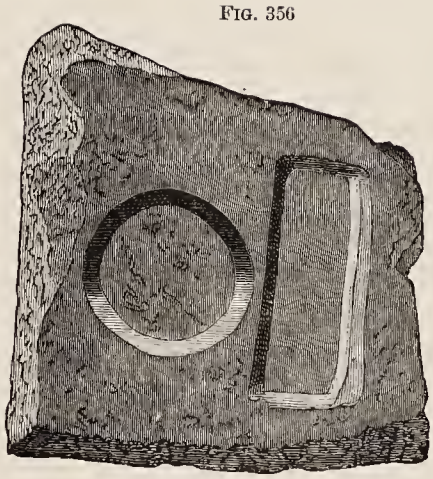
42266
(1/3)

Fig. 355



42245
(1/3)

Fig. 356

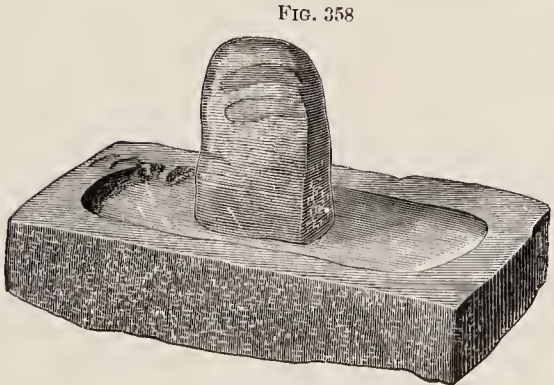


41289

Fig. 357

40808
1/4

Fig. 358



42272
(1/2)

Figs. 353–358.—Stone Implements from Zuñi.

of azurite or carbonate of copper, small nodules of which they collect at copper mines. This pigment is used in painting and decorating wooden images and gods.

93. (40717). Mortar similar to the above, and used for the same purpose.
94. (40718). Paint mortar made from a large irregularly round ferruginous sandstone. Used in pulverizing a reddish pigment for decorating pottery.
95. (40719). Mortar of a globular shape, made from a coarse-grained sandstone, used for grinding or mixing vermilion.
96. (40720). Paint mortar of sandstone. The whole mortar is only about an inch thick; made from a section of an old metate rubber.
97. (40722). Paint mortar of quartzite; blue pigment grinder. Size about four by three inches. This, like many of the flat mortars, has been first used as a rubbing stone and subsequently converted into a paint mortar.
98. (40723). Mortar made from a quartz boulder.
99. (40724). Sandstone mortar.
100. (40725). Paint mortar of sandstone, very flat.
101. (40726). Paint mortar, with oblong shallow depression; sandstone.
102. (40728). Square paint mortar; cavity about half an inch deep; sandstone impregnated with iron. Quartzitic pestle accom-panying it.
103. (40729). Paint mortar of quartzite; almost square; depression almost worn through by use; quartz pebble pestle accompanying it.
104. (40730). Small round paint mortar of basalt, with white quartz pebble pestle.
105. (40731). Fig. 353. Paint mortar and pestle of quartz, with a knob on the end, which serves as a handle. This mortar was used in grinding an azurite pigment.
106. (40732). Mortar shaped somewhat like a ladle; the projecting end is provided with a small groove out of which the paint is poured.
107. (40733). Small sandstone mortar.
108. (40864). Paint mortar of sandstone.
109. (40868). Paint mortar of basalt, almost square.
110. (40869). Flat, square sandstone paint mortar; black water-worn pebble for pestle.
111. (40907). Chili or red pepper mortar of very porous lava rock; oval bottom, shallow cavity, about four inches thick and eight in diameter. These lava mortars may have been used for other purposes, but at the present time the Indians use them in crushing the pods and seeds of red pepper, and occasionally for crushing parched corn. They are quite common.
112. (40908). Food mortar of lava rock; square with flat bottom. Mortars of this kind are used in crushing grain and seeds.
113. (42272). Fig. 358. Paint mortar of very hard, fine-grained sandstone. The specimen is a very fair type of all the square paint

mortars and pestles. The depression is often square instead of round. In grinding pigments the Indians generally move the pestle backward and forward instead of around as is done by our druggists.

114. (41273). Small sandstone paint mortar, much like the preceding.

115. (40227). Small egg-shaped paint pestle of white quartz. The general name of these in Zuñi is *äh-shŏc-tōn-ne.*

116. (42276). Flat sandstone, circular and about five inches in diameter; used as a quoit; originally a rubbing stone.

MISCELLANEOUS OBJECTS.

117. (39755). Eight specimens not very well defined. They are flint flakes, showing, by their shape, that they were designed for scrapers and groovers, being flat or slightly concave on one side and oval on the other.

118. (41289). Fig. 356. This is a sandstone mould for shaping metal into such forms as suit the fancy of the Indians for bridle and other ornaments; one cavity is rectangular, about four inches long by one in width; the other about two inches in diameter. Silver, which has long been a metal of traffic among these tribes, is the one which is usually melted down for ornamental purposes. After it is taken from the mould it is beaten thin, then polished.

119. (41290). Is a portion of the same mould, with one cavity square and the other in the shape of a spear-head.

120, 121. (42266), Fig. 354, and (42267), are crucibles, which were used in connection with the moulds for melting silver and other metals. Many other ornaments are made in the same manner.

122. (40808). Fig. 357. This is a large, rudely chipped spear-head of mica schist, obtained at Zuñi, which was carried in the hand of one of the performers in a dance. It does not show any evidences of having been used in any other way. They called it *äh'-chi-än-tēh-ä-hla.*

123. (42245). Fig. 335. Handsomely-shaped and well-polished skinning knife of a remarkably fine-grained silicious slate. Above the shoulders on one side it is worn off to an oval surface, and is flat on the other.

124. (40915). Round sandstone, which is called a gaming stone; it is quite round, and bears the same name in Zuñi as the pestle, *āh-kä-mon-ne.*

125. (40916). Quartz stone, flat and rounded at the ends as a sort of last to keep moccasins in shape while being sewed; called *yä'-lĭn-ne.*

126. (41239). String of alabaster beads, *tem-thla.*

127. (41240). Charm, representing the upper part of the body and head of a bird.

128. (41241). Charm; representing a horse; quartz.

129. (41242). Charm; bird's head and upper part of body.

Fig. 359

39871
($\frac{1}{5}$)

Fig. 360

39916.
($\frac{1}{4}$)

Figs. 359, 360.—Zuñi Water Vases.

FIG. 361

39934.
(1/5)

FIG. 362

41150.
(1/4)

FIGS. 361, 362.—Zuñi Water Vases.

130. (41243). Charm; horse and saddle.
131. (41244). Charm; representing entire bird; quartz.
132. (41245). Charm; head and upper part of body of a bird.
133. (41246). Charm; the same.
134. (41247). Agate arrow-head.
135. (40870). Disk of sandstone, slightly convex in the centre; used in games.
136. (42325). Flat sandstone slab, with the horns of male and female deer engraved on one side.
137, 138. (40721) and (41249). Flat sandstones, used for baking *wi-a-vi*, a thin, wafer-like bread, by heating the rocks and then spreading a gruel-like mixture of corn meal over them. The largest one of these stones is about three feet in length by two in width. They are used by the Zuñi and Moki pueblos quite extensively.
139. (42324). Eighty chip flints and flakes of agate, quartz, chalcedony, &c.

ARTICLES OF CLAY.

WATER VASES.

140. (39871). Form and decorations shown in Fig. 359. The slender shading lines only are brown, the rest of the figuring black; the base in this as in most Zuñi pottery is reddish or slate colored. This may be considered as the type of one variety of decorations, readily distinguished by the unadorned circular spaces, the large scrolls, and the absence of animal forms. The larger forms of these vases are called by the Zuñians *kāh'-wi-nā-kä-tēhl-le*; the smaller forms, *det-tsan-na*.
141. (39916). The ornamentation is well shown in Fig. 360. The combinations on this piece are rare on Zuñi pottery, and the chief figure on the body is more symmetrical than is usual in this group of ware. This may also be considered as representing a second type of decorations of which there is but one other example in the collection.
142. (39920). This belongs to the variety represented by Fig. 360, and varies chiefly in having the neck decorated with leaf-like figures, and in having the scrolls replaced by triangles with inner serratures.
143. (39934). The largest size; Fig. 361. The decorations of this piece belong to a third variety, distinguished chiefly by the presence of the elk or deer. Attention is called to the three figured zones or belts on the body, the upper with the arch inclosing an elk; the middle and narrow belt adorned with figures of birds with a long crest feather. The helix or scroll is freely introduced in this variety. The one here figured is typical of quite a large group. The animals are usually black, as are the lines separating the spaces.

144. (41150). This is similar in size and decorations to Fig. 361, and is shown in Fig. 362. The difference in the form of the bird in this from that in the preceding is worthy of notice.
145. (39933). Similar to No. 143 (Fig. 361); bird scrolls as in No. 144.
146. (40322). Medium size, represented in Fig. 364. It may be grouped in the variety of which Fig. 359 is given as the type.
147. (39936). Large size; decorations resembling those in Fig. 364, but with two belts of scrolls on the body.
148. (41154). Medium size; figures as in No. 147.
149. (41155). } Medium size; decorations similar to the preceding, except
150. (41162). } that No. 150 (41162) has figures of sheep on the neck.
151. (41158). Large size; the ornamentation of this piece, as will be seen by reference to Fig. 363, belongs to the variety represented by Fig. 359 and 364, but differs in having on the body a middle zone of bird-like figures.
152. (41161). Large size; similar to Fig. 363.
153. (39943). Decorations very similar to those shown in Fig. 359.
154. (39937). Medium size; ornamentation similar to that seen in Fig. 361.
155. (40312). Large size; shown in Fig. 365. As will be seen by comparison the decorations are the same as those in Fig. 361, except that the elk is omitted and a figure of scrolls introduced in its place.
156. (40310). Fig. 366. Large size. In the decorations of this piece we observe a new feature, a rosette or flower, showing a decided appreciation of the beautiful, either suggested by the flowers of the Helianthus or by something introduced by Europeans, but most probably the former. The different forms of this figure found on this ware furnish perhaps the best evidence of taste exhibited by the Zuñian artists.
157. (40313). Fig. 368. Large size. In this we see the same figures as in Figs. 363 and 366 brought into combination with the rosette, the birds being replaced by sheep.
158. (40318). Large size; similar to No. 149, except that the rosette is introduced in place of the circle.
159. (40314). }
160. (40316). } Decorations belong to the variety shown in Fig. 361.
161. (40317). Fig. 367. A little study of these figures will satisfy any one that although there is an apparently endless variety in details, there are, in fact, but comparatively few different figures.
162. (41146). Fig. 370. This belongs to the same variety as Fig. 368.
163. (40315). Large size, similar to that represented in Fig. 370, but varying in form, having the expansion at the shoulder more prominent and tapering more rapidly from thence to the base. The figures remind us of the trappings often seen in Japanese cuts.

Fig. 363

41158.
(1/5)

Fig. 364

40322.
(1/3)

Figs. 363, 364.—Zuñi Water Vases.

Fig. 365

40312.
(1/5)

Fig. 366

40310.
(1/5)

Figs. 365, 366.—Zuñi Water Vases.

Fig. 367

40317.
(1/5)

Fig. 368

40313
(1/5)

Figs. 367, 368.—Zuñi Water Vases.

Fig. 369

40701.
(1/4)

Fig. 370

40146.
(1/4)

Figs. 369, 370.—Zuñi Water Vases.

Fig. 371

39935.
(1/4)

Fig. 372

41149
(1/4)

Figs. 371, 372.—Zuñi Water Vases.

Fig. 373

39774.
(1/4)

Fig. 374

41167.
(1/4)

Figs. 373, 374.—Zuñi Water Vases.

164. (40319). Medium size; decorations similar to those in Fig. 361, except that here the elk or deer stands on a broad black band in which there is a row of white diamonds.

165. (40321). Medium size; of the varicty represented in Fig. 361, but in these smaller pieces the bird zone is omitted, and there is but one figured zone on the body. In this example a small elk is represented as standing on the back of a larger one.

166. (40700). Medium size, belonging to the same type as the preceding. On the neck are figures of grotesque kite-shaped birds.

167. (40701). Medium size; Fig. 369. This and the preceding one are not designated as vases in the original Smithsonian Catalogue, nor in my field list, but according to the form should be classed in this group.

168. (41165). Medium size; decorations similar to those of Fig. 367, but varying in having the figure of a bird introduced in the middle belt with a small double scroll arising out of the back. The lower belt has the same bird reversed.

169. (39935). Medium size. The unusual decorations of this piece are shown in Fig. 371. It differs, as does also Fig. 369, from the usual form; the body is more nearly spherical, the neck more gracefully curved, and the rim slightly flaring. The proportions are also different; height, 8.75 inches; diameter of body, 10; of mouth, 6.5.

170. (41144). } Decorations similar to those in Fig. 364; (41144) varies
171. (41147). } in having the figures of elk or deer on the neck and in the coarser or ruder scrolls.

172. (41149). This somewhat abnormal form is well shown in Fig. 372. It is of medium size.

173. (41152). This belongs to the same type, both as to form and decorations.

174. (41153). Large size; of the usual form, but the decorations on the body peculiar, the design being crudely architectural.

175. (41156). Medium size, belonging to the type represented by Fig. 361.

176. (41163). Medium size. This pretty vase has a somewhat peculiar decoration, which can be best described as a kind of patch-work representing small fragments of pottery.

177. (41166). Medium size, with the usual elk and scroll figures.

178. (41167). This specimen, which is rather above medium size, presents one of the most chaste designs in the entire group. It is represented in Fig. 374. Attention is called especially to the leaves and to the simple meander in the stripes.

179. (41168). Marked with the usual elk and scroll figures. Medinm size.

180. (39774). The decorations of this piece, shown in Fig. 373, may be classed with the peculiar type with oblique and vertical bands represented inFig. 374.

181. (39917). Figures similar to those in Fig. 363.

182. (40768). The decorations on this piece consist entirely of representations of pyramids or possibly of pueblos, and are arranged in bands, one on the neck and two on the body; the two upper bands show the figures inverted.

183. (40770). } No. 183 is decorated with scrolls and bird scrolls and a
184. (40771). } scalloped line around the shoulder; No. 184 with elks and scrolls on the body.

185–188. 185, (40800). Fig. 378. The grotesque or kite-like bird seen on the neck, though rarely seen on the large water vase, is common on the small ones. To this type belong the following Nos. 186, (40769); 187, (40772); 188, (40791).

189. (40773). } These have the usual triangular and scroll designs with-
190. (40776). } out animal figures, as in Fig. 364.

191. (40792). Fig. 377. The decorations on this evidently belong to the same type as those represented in Fig. 359, the bird on the neck being the only variation. To this type also belong the following numbers: 192, (40778); 193, (40792); 194, (40794).

195. (40779).
196. (40781).
197. (40783).
198. (40787).
199. (40788).
200. (40801).
} These belong to the type represented by Fig. 361, distinguished chiefly by the elk, triangular figures, and scrolls.

201. (40780).
202. (40784).
203. (40786).
204. (40790).
} The decorations on these are similar to those shown in Figs. 366, 367, 368, and 370, in which the rosette is a distinguishing characteristic. Nos. 201, 202, and 203 are without figures of animals; No. 204 has a double belt of elk figures between the rosettes.

205. (40782). The designs on this remain unfinished; except that the triangles on the neck and the arches in which it was evidently the intention to place the figures of animals, are shown.

206. (40785). Fig. 375. This pretty vase, as will be seen by reference to the figure, has the diameter greater in proportion to the height than usual. Although the design is tasteful the lines are coarse and not so well drawn as the figure indicates.

207. (40789). On this there is an evident attempt to represent a pueblo or communal dwelling and the ladders.

208. (40793). Shown in Fig. 376.

209. (40795). Neck and lower belt of the body marked with vertical lines and oblique diamonds; upper belt with inverted pyramidal figures.

210. (40849). Very small; marked with oblique scalloped lines.

211. (40850). Very small; elk and grotesque bird on the body.

212. (40851). Very small; decorations similar to those on the middle belt of Fig. 373.

Fig. 375

40785
(1/3)

Fig. 376

40793
(1/3)

Fig. 377

40797.
(1/4)

Fig. 378

40800.
(1/4)

Figs. 375-378.—Zuñi Water Vases.

FIG. 379 (39659)

FIG. 380 (39618)

FIG. 381 (40798)

FIG. 382 (39592)

FIG. 383 (41145)

FIG. 384 (41052)

JULIUS BIEN, LITH

Figs. 379 – 384 – ZUÑI POTTERY.

⅙ NATURE.

213. (41105). Similar to that shown in Fig. 361.
214. (40774). Marked with transverse lines and scrolls; design simple and unique.

The following specimens are red ware:

215. (40311). Large size; without ornamentation.
216. (40775). Small; form peculiar, diameter of the body greatest at the base, mouth flaring; decorations in black, consisting of triangles pointing downwards, and lines.
217. (40798). Medium size. See Fig. 381.
218. (40799).
219. (40802). } Small; without ornamentation.
220. (41145). Large. See Fig. 383.
221. (41052). Medium size. See Fig. 384.
222. (41151.)
223. (41157). } Medium size; without ornamentation.
224. (41159).
225. (41160). Medium size; with a scalloped band in black around the rim and shoulder.

Black ware:

226. (39930). Larges ize; without ornamentation.

The only black water vase obtained at Zuñi; it was doubtless procured from some other tribe. The black ware obtained from this tribe is in nearly all cases used for cooking, or holding liquids or moist foods. As remarked in another place, the Zuñi black ware is generally small except in cases where large quantities of food are to be cooked, which occurs at feast times, when very large vessels are employed.

WATER JUGS AND JARS.

These vary so greatly in form that it is impossible to give any genera description that would convey a correct idea.

227. (39885). Somewhat mug-shaped, with handle; the top is rounded to the small mouth, no neck. White ware with scalloped bands and a Maltese cross.
228. (39886). Similar in form, but smaller, without handle or decorations.
229. (39899). Somewhat similar in form to the preceding, except that it is lower and more depressed, and iustead of a mouth at the top there is an orifice at the side as in the canteens, with which this should probably be classed.
230. (39940). Similar to No. 228.
231. (40062). Similar in form to No. 227, but without handle; with a double scalloped band around the constricted portiou, and a single one around the mouth; figure of an insect on the upper half; apparently intended to represent a butterfly or large moth.
232. (40608). Small unhandled jug in the form of a smelling bottle. Unadorned.

233. (40611). Similar to No. 232.
234. (40697). } Like No. 228, with slight decorations.
235. (40608). }
236. (41140). An amphora or slender jug with two handles.
237. (39528). A jar shown in Fig. 399.
238. (39922). *Mē-hē-tō*, canteen of large size. Plain brown, as are also the following specimens:
239–242. 239, (40079); 240, (40081); 241, (40082), this has a small flower on one side; 242, (40083).
243–245. 243, (40088); 244, (40090); 245, (40091).
246–248. 246, (40085); 247, (40086), and 248, (40676), plain white.
249. (40077). White with color decorations. Fig. 387.

The following eight specimens are also white with colors:

250. (40078). Decorated profusely with scrolls, leaves, and other figures. See Fig. 400.
251. (40080). Figure of a coiled snake or worm, without head or other character to indicate what it was intended to represent.
252. (40084). Usual scroll figures.
253. (40087). Decorated with simple loops and bands.
254. (40089). Radiating serrate lines.
255. (40092). Vase-shaped, with three colored bands.
256. (40093). Shown in Fig. 385.
257. (40886). Handsome piece, with floweret at the apex, scrolls on the side, and a scalloped band around the middle. The bands are always horizontal, the vessel being on its side. See Fig. 398.
258. (39914). *Mē-hē-tō-tsān-nā*, canteens of small size. Red. Double, with two sets of handles and two chambers, but with only one orifice. Decorations in white, those on the larger piece consisting of meanders of the simplest form, a figure very unusual on Zuñi pottery.
259. (39659). Brown, with handle and decorations in black. See Fig. 379.
260. (39923). Plain brown.

The following are also plain brown, red, or yellow:

261–271. 261, (40094); 262, (40095); 263, (40096); 264, (40097), Fig. 390; 265, (40099); 266, (40100); 267, (40101); 268, (40687), Fig. 386; 269, (40688); 270, (40689); 271, (40690).
272. (40102). White, with an oblique scalloped band.
273. (39872). White, shown in Fig. 389.
274. (40686). White, decorations as in Fig. 389.
275. (40685). White, with a single flower.
276. (40691). White, egg-shaped, with a single handle; decorated with a figure of the horned toad.
277. (40692). White, form and decorations like those shown in Fig. 385.
278. (40098). With outline figures of birds.
279. (40695). White, shown in Fig. 388. Although obtained at Zuñi, this piece may have been manufactured at one of the other pueblos.

Fig. 385

40093
$\frac{1}{3}$

Fig. 386

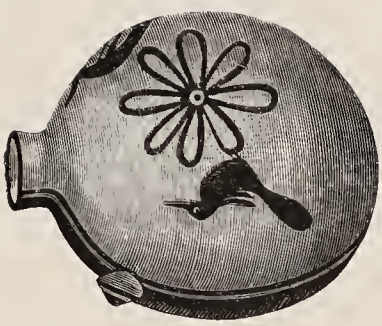
40687
$\frac{1}{3}$

Fig. 387

40077
$\left(\frac{1}{6}\right)$

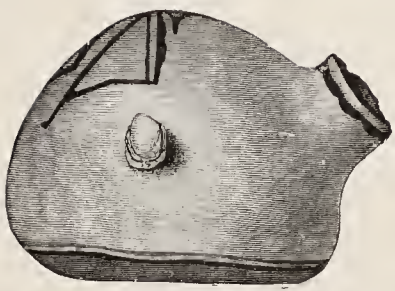
Figs. 385–387.—Zuñi Canteens

Fig 388



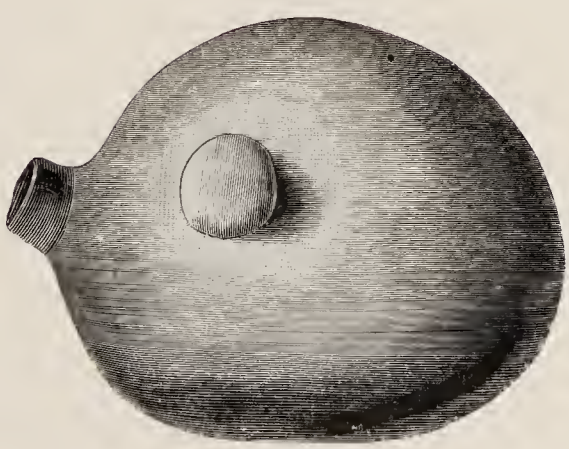
40695
1/3

Fig. 389



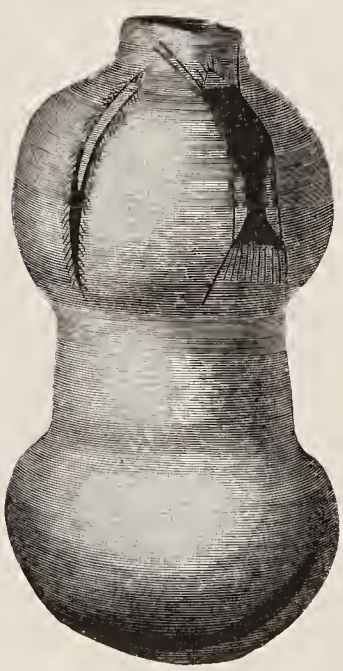
39872
1/3

Fig. 390



40097
1/3

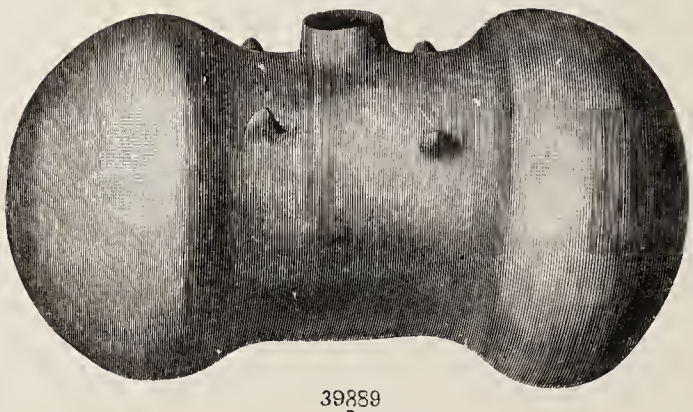
Fig. 391



40106
1/3

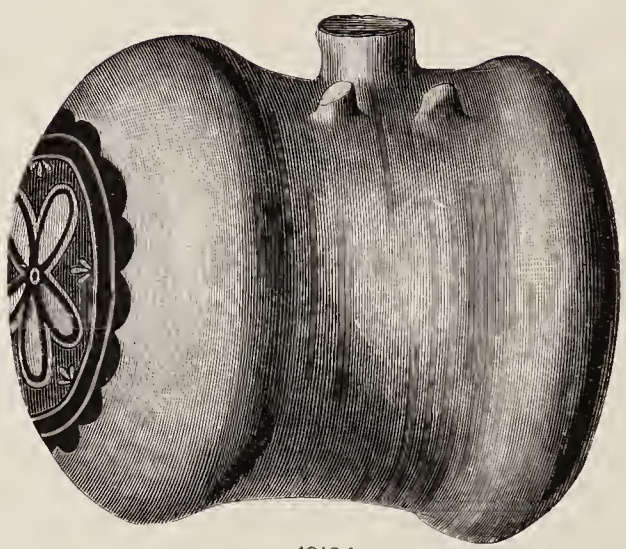
Figs. 388–391.—Zuñi Canteens.

Fig. 392



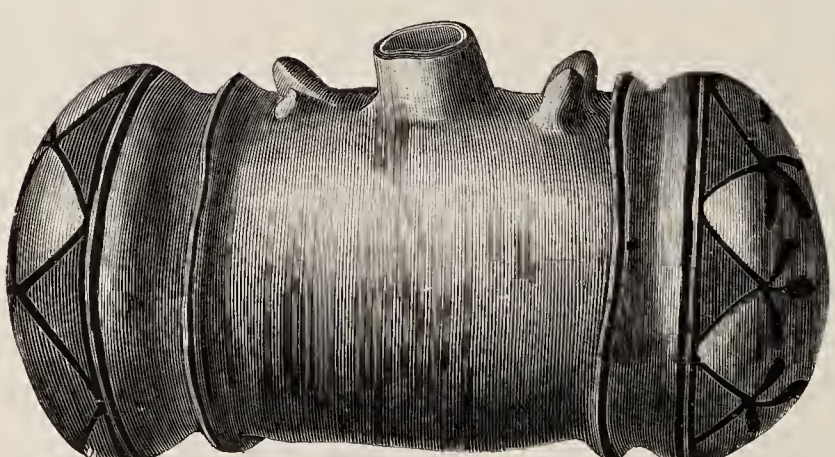
39889
$\frac{1}{3}$

Fig. 393



40104
$\frac{1}{3}$

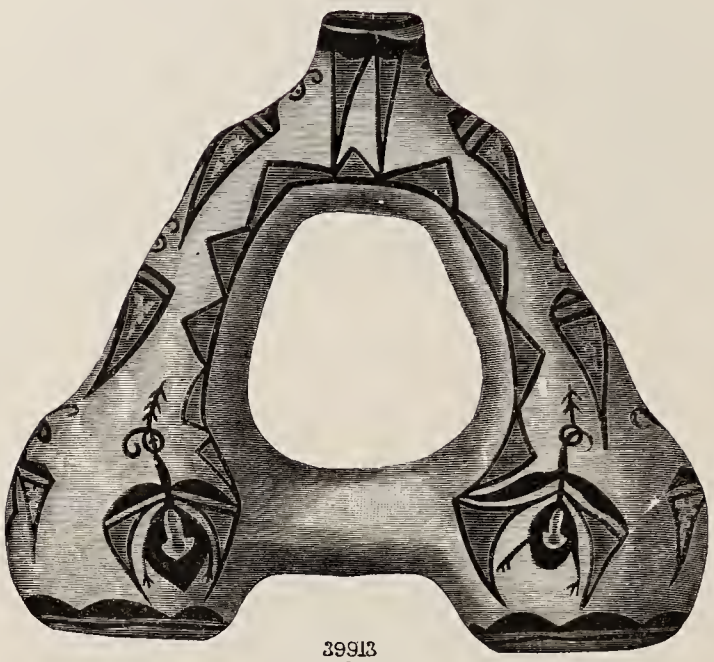
Fig. 394



39915
$\left(\frac{1}{3}\right)$

Figs 392–394.—Zuñi Canteens.

FIG. 395



39913
$\frac{1}{3}$

FIG. 396

39837
$\left(\frac{1}{3}\right)$

FIG. 397

39914
$\frac{1}{3}$

FIGS. 395–397.—Zuñi Canteens.

JUGS OF FANCIFUL FORMS.

280. (39913). Fig. 395. Zuñi name· *Mē'-wi-i-pä-chin.*
281. (39887). Similar to No. 280.
282. (39889). Fig. 392. *Mē'-wi-kē-lik-tōn-ne.* Plain red.
283. (39915). Fig. 394.
284. (40103). White, bottle-shaped, with constriction below the middle; scalloped bands and bird figures aronnd the upper third. See Fig. 402.
285. (40104). Shown in Fig. 393.
286. (40105). Similar to No. 285. Marked with the figure of a bird having the wings spread. Navajo. *Kō'-sē-tŏm-me.*
287. (40106). Fig. 391.
288. (39887). Fig. 396. A double-globed canteen; triangular, with orifice at npper convexity.
289. (39914). Fig. 397. Red ware, with white lines on the lower globe and decorations in black on the npper, with orifice in each globe.

PITCHERS.

These are of the usual form of such vessels, except that they are generally without the lip. It is possible that to a certain extent they have been patterned after those observed in nse among the Enropeans or white races with whom these Indians have come in contact. But we shall presently find specimens similar in form among the ancient pottery found in the ruins of the cliff houses. We are inclined to believe that the form is original and not borrowed. The figures introduced will suffice to illustrate the form and usual decorations. The specimens obtained are generally small, varying in capacity from a pint to half a gallon. These are known in Zuñi by the name *Ē'-mūsch-tōn-ne.*

290. (39918). Shown in Fig. 403.
291. (40668). With scalloped margin and decorations similar to those on Fig. 403.
292. (40669). Without handle and shonld be classed with the cnps. Figures of plants.
293. (40671). Triangles on the upper portion; simple meander on the bowl.
294. (40672). Similar to the following.
295. (40673). With scalloped margin and zigzag lines on white ground; small right-angle handle.
296. (40674). With scalloped marginal and middle bands.

The following are brown ware with bnt slight decorations:

297–310. 297, (40838); 298, (40839); 299, (40841); 300, (40843), ontline figures similar to those on No. 293; 301, (40844); 302, (40887); 303, (40888); 304, (40889); 305, (40890), is really black but not polished; 306, (40891); 307, (40893); 308, (40894); 309, (40897); 310, (40898).
311. (40842). Scalloped rim and similar in size and shape to 298, (40839).

312. (40845). Small, white, with decorations and of unusual form, in fact in the original field list is classed among the canteens. The mouth is prolonged obliquely in the form of a large tube. It should perhaps be classed with the water jugs.
313. (40892). Form and decorations shown in Fig. 405.
314. (40895). Scalloped margin; decorated with scrolls.
315. (40896). Scalloped margin. Figures of the little water animal so often represented on the earthenware baskets.
316. (40899). Without handle; diamond figures on the neck.
317. (41005). Fig. 406.
318. (41013). Slender neck and small mouth; jug-shaped, marked with twigs and leaves. This does not appear to be of Zuñi manufacture.
319. (41136). Fig. 407.
320. (40840). Shown in Fig. 404.

CUPS OR CUP-SHAPED VESSELS.

Under this general head are included two forms: one, closely resembling the true cup, as shown in the figures and to which the Zuñis apply the name *sāt-tsān-nā-mū-yā*, and those in the form of ollas or bowls, and without handles. The decorations of the true cup-shaped vessels, especially on the inner surface, follow somewhat closely the patterns found on the bowls. Here we see the zigzag marginal line, the scalloped bands, the interlaced or tessellated bands with star points, triangles, scrolls, &c.; but the elongate triangle or lance point is seldom present. As no new figure is introduced it is unnecessary for me to describe the decorations. A few are of red or brown ware.

The following numbers refer to true cups:

321–345. 321, (40058); 322, (40615); 323, (40616), Fig. 408; 324, (40617); 325, (40618); 326, (40619); 327, (40620); 328, (40621), Fig. 409; 329, (40622); 330, (40623); 331, (40624); 332, (40625); 333, (40627); 334, (40638); 335, (40639); 336, (40640); 337, (40641); 338, (40643); 339, (40644); 340, (40837); 341, (40847); 342, (40848); 343, (40880) —this is an unusually large cup and although having a handle may have been used as a bowl; 344, (40998); 345, (41148), an unburnt specimen.

The following are without handles and are either small bowls or paint cups:

346–355. 346, (40426); 347, (40436); 348, (40458); 349, (40642); 350, (40853), a small bowl-shaped cup, *sāt-tsān-nā;* 351, (40994); 352, (40995); 353, (40996); 354, (40997); 355, (41000).

EATING BOWLS.

The smaller forms are called *sāt-tsān-nā.*

356. (39962). Fig. 410. The ornamentation is typical of a variety very common on Zuñi bowls. The design on the outer surface is more constant than that on the inner, in which the figures of animals,

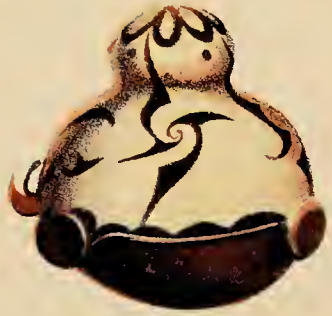


FIG. 398 (40886)

FIG. 399 (39928)

FIG. 400 (40078)

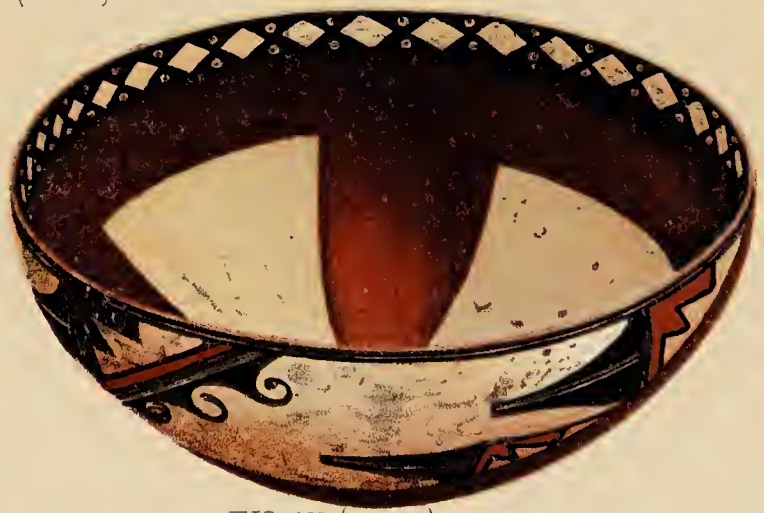


FIG. 401 (40486)

FIG. 402 (40103)

JULIUS BIEN, LITH.

Figs. 398–402 – ZUÑI POTTERY.

⅛ NATURE

Fig. 403

39918
(1/4)

Fig. 404

40840
(1/4)

Fig. 405

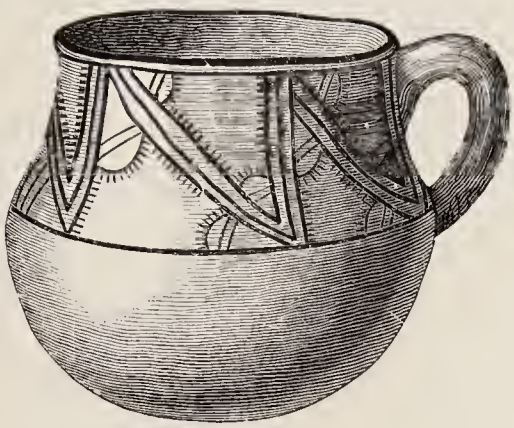
40892
(1/3)

Fig. 406

41005
(1/4)

Figs. 403–406.—Zuñi Water Pitchers.

Fig. 407

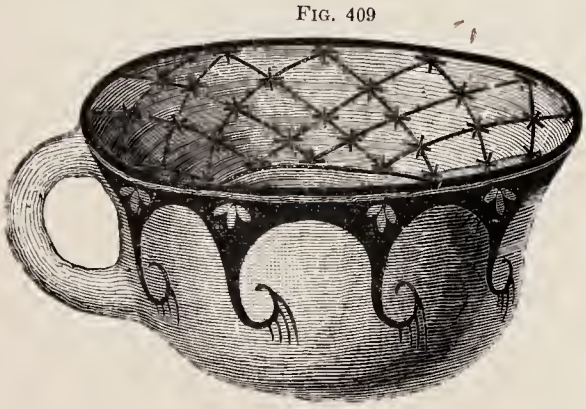


41136
(1/3)

Fig. 408

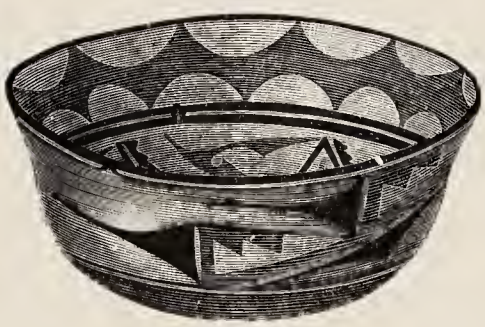
40616
(1/3)

Fig. 409



40621
(1/3)

Fig. 410



39962
(1/4)

Fig. 411

40266
(1/4)

Fig. 412

40285
(1/4)

Figs. 407–412.—Zuñi Water Pitcher, Cups, and Eating Bowls.

especially the elk, are sometimes introduced. The distinguishing feature of this type is the zigzag line on the inner margin.

The following numbers belong to the same type:

357–378. 357, (39746); 358, (39973); 359, (39975); 360, (39981); 361, (39984); 362, (39988); 363, (39989); 364, (39991); 365, (39993); 366, (39994); 367, (39997); 368, (39999); 369, (40004), duplicate of Fig. 411; 370, (40005); 371, (40231); 372, (40234); 373, (40236); 374, (40239); 375, (40246); 376, (40249); 377, (40250); 378, (40259).

379–396. 379, (40260); 380, (40266), shown in Fig. 411; 381, (40274); 382, (40285), shown in Fig. 412; 383, (40504); 384, (40512); 385, (40513); 386, (40516); 387, (40517); 388, (40519); 389, (40522); 390, (40527); 391, (40530); 392, (40541); 393, (40546); 394, (40528); 395, (40203); 396, (40211).

397. (39951). Decorated, on the inner margin only, with triangles.

398. (39952). Similar to that shown in Fig. 411, except that the inner marginal line is scalloped.

The following numbers may be classed in the same group:

399, 400. 399, (40205); 400, (40210).

401. (40521). Similar to No. 397, except that it has the interior below the marginal line decorated with scrolls.

402. (39902). Decorated on the inner surface only, with the usual scrolls; marginal band simply a narrow line or entirely wanting.

The following belong to the same type:

403–417. 403, (39960); 404, (40002); 405, (40006); 406, (40232); 407, (40233); 408, (40237); 409, (40263); 410, (40268); 411, (40284), in this small specimen there are but few figures; 412, (40503); 413, (40505); 414, (40520); 415, (40524); 416, (40981); 417, (40987).

418. (40906). The decorations of this piece belong to a variety which is readily distinguished by the broad checkered band on the inner margin.

There are two sub-varieties, one with and one without figures on the external surface. This and the following specimens belong to the latter group:

419, 420. 419, (40533); 420, (39890).

421. (40001). This belongs to the former group, as represented by Fig. 412.

422. (39898). External decorations as in Fig. 410, except that the lower margin of the oblique line is furnished with scrolls as in Fig. 375, inner surface with leaves, and a zigzag marginal line.

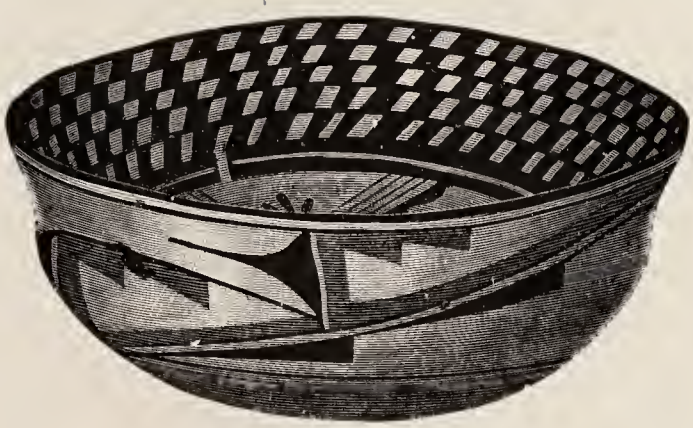
423. (39908). This and the following thirty-one specimens have the external surface ornamented as in Fig. 410, the decorations of the inner surface varying and differing from those already enumerated. In this the marginal line is simple.

424. (39909). Marginal line scalloped; central rosette of simple lines.

425. (39963). Zigzags in irregular lines, no marginal band; form semi-globular.

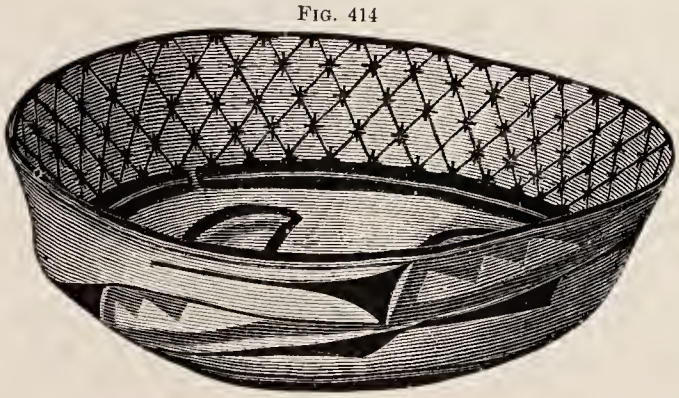
426. (39963). Triangles and scrolls; somewhat mug-shaped.
427. (39972). Usual form; decorations as in the preceding.
428. (39975). Ornamentation as represented in Fig. 422.
429. (39976). Double scrolls; no marginal bands.
430. (40000). Margin as in Fig. 422; no other inner decorations.
431. (40204). Scroll figures; no marginal band; form hemispherical.
432. (40216). Similar to Fig. 423, as are also the following specimens:
433–443. 433, (40218); 434, (40223); 435, (40238); 436, (40240); 437, (40284); 438, (40286); 439, (40501); 440, (40506); 441, (40507); 442, (40510); 443, (40514); the inner decorations of this piece vary in having the figures of the elk below the marginal band.
444–447. 444, (40515); 445, (40547); 446, (40985); 447, (40217). Zigzag marginal band; no other inner decorations.
448. (40241). Marginal band double, upper line undulate, lower, straight with star points.
449. (40245). Marginal band composed of rows of stars, as in Fig. 414.
450. (40251). Only the inner decorations consist of radiating serrate lines.
451. (40258). Similar to that shown in Fig. 424.
452. (40273). Inner decorations apparently intended as floral; marginal line very slender.
453. (40275). Inner figures; radiating scrolls.
454. (40287). Similar to No. 453.
455. (40558). Inner figures in the form of blocks or tiles; marginal band undulating.
456. (40549). Inner decorations consist of two narrow crenate bands, one marginal and the other just below it.
457. (39891.) This and the following thirty-nine specimens are without external ornamentation. In this one the inner figures are radiating scrolls, and birds.
458. (39892). Slender marginal scalloped band only.
459. (39893). Serrate marginal band only.
460. (39953). Similar to Fig. 424.
461. (39954). Birds with wings spread, and scrolls.
462. (39958). Differs from the usual form in having the margin undulating. The inner decorations consist chiefly of combinations of triangles. Similar to
463. (39971). Similar to the preceding.
464. (39959). Scrolls and triangles.
465. (39960). Scrolls and leaves.
466. (39961). Oblique serrate lines.
467. (39986). Broad net-work, marginal band, as seen in Fig. 414; form unusual, being constricted near the base.
468. (39992). Marginal band composed of sigmoid figures.
469. (39996). Very small; central diameter with rays from the points; the marginal band is simply a narrow line.

Fig. 413



40041
(1/4)

Fig. 414



40033
1/2

Fig. 415

40164
(1/4)

Figs. 413–415.—Zuñi Eating Bowls.

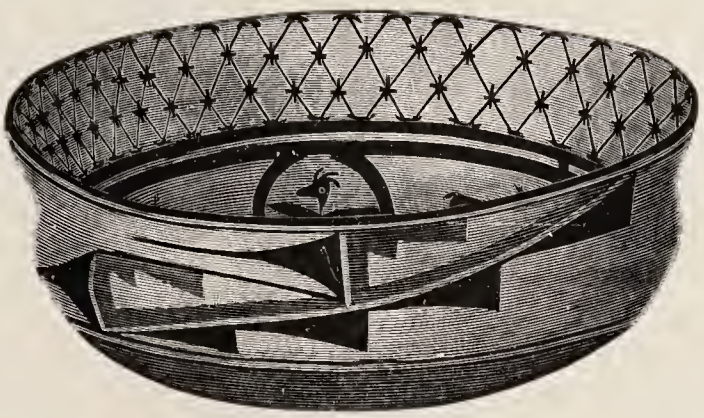
470. (40209). Ornamental marginal band only.
471. (40212). Scalloped marginal band, and central rosette or flower.
472. (40224). Scalloped marginal band, and figures of deer.
473. (40225). Zigzag band and the usnal scroll figures.
474. (40229). Two slender bands, and central radiating scrolls.
475. (40242). Zigzag marginal line only.
476. (40248). Narrow scalloped marginal band; no other figures.
477. (40252). Zigzag band and floral decorations.
478. (40253). No marginal band; oblique triple and dotted lines.
479. (40265). Serrate marginal band and central rosette.
480. (40270). No band except a simple line bounding the central figure of radiating leaves.
481. (40272). Three plain bands.
482. (40481). Broad marginal band in figures arranged in square blocks.
483. (40485). Very small; marginal net-work band, central floral figure.
484. (40490). Similar to the preceding.
485. (40489). Plain maginal band; central floral figures.
486. (40492). Zigzag marginal band as in Fig. 425.
487. (40498). Marginal band as in Fig. 414.
488. (40499). Scalloped marginal band.
489. (40508). Zigzag band and floral decorations.
490. (40511). Marginal band composed of lines of stars.
491. (40530). Similar to No. 486, having also a central figure.
492. (40536). Marginal band of scrolls and triangles.
493. (40537). Net-work marginal band.
494. (40539). Scalloped band and central figure of twigs and leaves; unusually chaste design.
495. (40542). Like No. 467.
496. (40545). Scalloped marginal band.
497. (39967). Do.
498. (39965). Zigzag inner marginal band; figures of the elk externally and internally.
499. (39966). External and internal zigzag marginal band.
500. (39969). No external decorations; marked internally with oblique lines, no band.
501. (39970). Scroll figures on the inner surface; on the outer, triangles pointing in opposite directions; no bands.
502. (39977). Dish-like, undulate, external and internal marginal band.
503. (39978). Inner band of crosses, and central figure, outer serrate marginal band.
504. (39982). } Decorations same as those represented in Fig. 414, with a
505. (39983). } wide, latticed, marginal band on the inner side of the bowl.
506. (39985). Both surfaces decorated with scroll figures.
507. (39987). Inner surface with scroll figures, outer with but a marginal scalloped band.

508. (39990). Both surfaces marked with oblique serrate lines; unusually flaring.
509. (39998). Inner surface with reversed elks; outer with oblique lines, with each side serrate.
510. (40007). Inner surface with serrate band and birds; outer with serrate band.
511. (40213). Elk and scrolls internally; an outer scalloped band.
512. (40215). Resembles No. 501.
513. (40219). The decorations on this bowl are unusual; those of the inner surface consist of a slender crenate marginal band, and below this a woman holding a child and apparently closely wrapped in a robe of some kind and placed transversely; the outer margin is marked with a broad band of crosses regularly spaced by perpendicular lines.

The following numbers belong to the type represented in Figs. 356, 411, and 412:

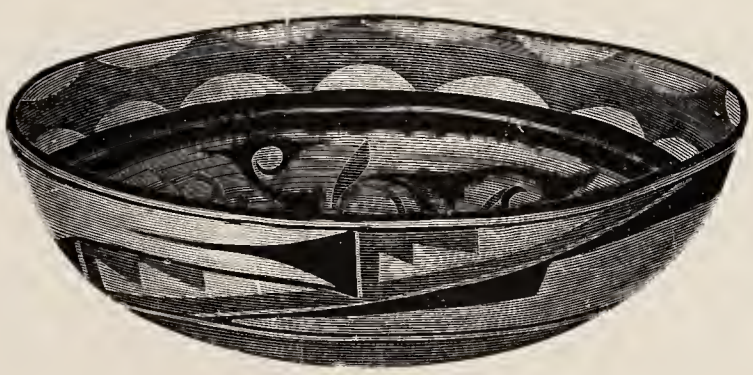
514–520. 514, (39979); 515, (40220); 516, (40221); 517, (40243); 518, (40274); 519, (40493); 520, (40523), inner marginal band consists of scrolls and triangles.
521. (40227). Inner marginal band broad and divided into diamond spaces; outer surface ornamented with figures similar to those on vase represented by Fig. 372.
522. (40230). Although classed with the bowls this is shaped somewhat like the paint pots; outer and inner bands.
523. (40247). Resembles No. 504.
524. (40254). Two broad undulate lines on the external surface; inner surface with blocks and scrolls.
525. (40256). Inside with crenate marginal lines, and circular space and triangles as in Fig. 359. External surface with a simple scalloped band.
526. (40264). External surface as in the preceding; internal scrolls and triangles.
527–533. 527, (40267); 528, (40269); 529, (40487); 530, (40495); 531, (40509); 532, (40529); 533, (40531). The decorations on these specimens belong to the same general type as those of No. 526.
534. (40271). Mug-shaped with flat bottom; outer surface marked with five scalloped bands; inner with scrolls.
535. (40279). Outer surface with triangular figures; inner with a scalloped marginal band and a similar band below.
536. (40482). Similar in form to No. 534. Outer and inner decorations consist almost entirely of triangles.
537. (40483). Without bands; interior, scrolls; exterior, geometrical figures.
538. (40488). This belongs to the type represented by Fig. 411; rosette on the inner surface.
539. (40491). Similar in form and decorations to No. 534.

Fig. 416



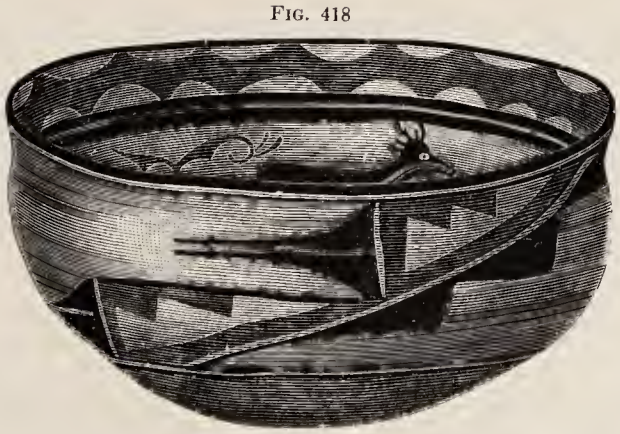
40296
(1/4)

Fig. 417



40493
(1/4)

Fig. 418



40176
(1/4)

Figs. 416–418.—Zuñi Eating Bowls.

540. (40496). Form like the preceding; inner face decorated with stars; outer with the usual triangular figures.
541. (40497). Flat, finger-bowl shaped, single scalloped band externally; scrolls and circular figures internally.
542. (40502). Double band of triangles externally; internally zigzag lines precisely like those in Fig. 371.
543. (40538). Inner serrate marginal band and radiating scrolls; no external decorations.
544. (40540). Central flower internally; a single serrate band externally.
545. (40980). Pan-shaped; inner surface marked with geometrical figures; outer without decorations.
546, 547. 546, (40988), 547, (40993). Without external ornamentation, marked with zigzag inner marginal line, central scroll, and triangular devices.
548. (40991). Oblique serrate lines externally; zigzag inner marginal line.
549. (40992). No external decorations; inner marginal line crenate; central flower.

Brown, red, or yellow ware. Usually without ornamentation.

550. (39907). Small rosettes or flowers on inner surface.

The following numbers are without ornamentation of any kind:

551–572. 551, (39968); 552, (40003); 553, (40207); 554, (40214); 555, (40226); 556, (40235); 557, (40244); 558, (40257); 559, (40276); 560, (40277); 561, (40278); 562, (40280); 563, (40281); 564, (40494); 565, (40526); 566, (40528); 567, (40534); 568, (40543); 569, (40544); 570, (40982); 571, (40984); 572, (40989).

The following have slight decorations; wherever the band is mentioned it is to be understood as marginal unless otherwise specified:

573. (39974). Narrow external band.
574. (39981). Floral figure on inner surface.
575. (39995). Triangles externally; narrow sub-marginal band internally.
576. (40206). Outline leaf-like figures on inner face.
577. (40222). Inner crenate band and cross lines.
578. (40229). Slender bands and scrolls.
579. (40288). Inner band of geometrical figures.
580. (40550). With slender outer band.
581. (40980). Inner zigzag band and triangular figures.
582. (40983). Inner central white flower.
583. (40990). Inner band of scrolls.

The larger forms, following, are called *Ĭ'-tŏn-ä-ka-sāh-le.*

584. (40041). Represented in Fig. 413. The broad checkered band on the inner margin forms the distinguishing characteristic.

The following are similarly decorated:

585, 586. 585, (40010); 586, (40167).

587. (40033). As closely resembling the preceding, I introduce here a variety with a latticed marginal band shown in Fig. 414.

The following specimens belong to the same variety, the chief differences, being the inner central figures:

588. (40164). Fig. 415.

589. (40177). Do.

590. (40181). This specimen has no ornamentation except the band.

591. (40296). Fig. 416. This varies in having the figures of birds with wings spread and of elks on the inner surface below the marginal line. These are but partially shown in the figure.

592, 593. 592, (40965) and 593 (40955) belong to the same variety, but their inner decorations resemble more closely those represented in Fig. 415.

594. (40493). Fig. 417. The decorations on this piece belong to the very common variety shown in Figs. 356, 411, and 412.

595–600. To this type belong the following numbers: 595, (40008); 596, (40009); 597, (40012); 598, (40013); 599, (40020); 600, (40021), this varies in having no ornamentation on the outer surface.

601–608. 601, (40176), shown in Fig. 418; 602, (40031); 603, (40038); 604, (40043); 605, (40046); 606, (40047); 607, (40050); 608, (40052)

609–628. 609, (40151); 610, (40152); 611, (40163); 612, (40168); 613, (40170); 614, (40171); 615, (40175); 616, (40185); 617, (40186); 618, (40188); 619, (40189), Fig. 419; 620, (40191); 621, (40193); 622, (40194); 623, (40195); 624, (40196); 625, (40197); 626, (40199); 627, (40200); 628, (40293), this piece is properly a bread bowl, *Mō'-tsin-i-kā-sä-le.*

629–638. 629, (40295); 630, (40297); 631, (40298); 632, (40310); 633, (40305); 634, (40306); 635, (40308); 636, (40309); 637, (40930); 638, (40931), shown in Fig. 420. I would call attention here to the strong similarity of the inner decorations of this bowl with those on the body of the vase represented in Fig. 359. This is properly a bread bowl.

639–646. 639, (40938); 640, (40957); 641, (40958); 642, (40967); 643, (40971); 644, (40974); 645, (40975); 646, (41171), Fig. 421.

The following specimens have the same external decorations as those represented in Figs. 413–421, but differ in regard to the figures on the inner surface.

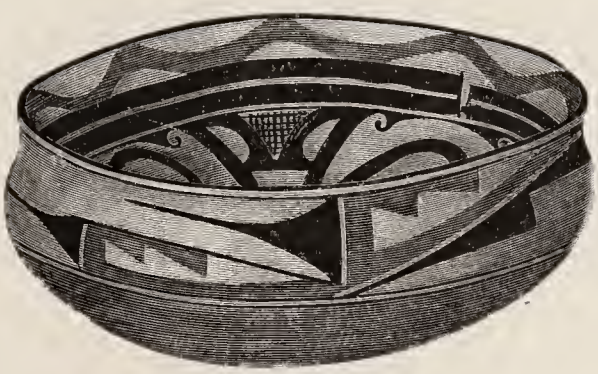
647. (40014). Fig. 422. The cut fails to show the figures of the elk placed among the scroll ornaments.

648, 649. 648, (40023); 649, (40026).

650–658. 650, (40028), shown in Fig. 423; 651, (40035); 652, (40042); 653, (40045); 654, (40049); 655, (40051), these two are bread bowls; 656, (40153); 657, (40156); 658, (40178).

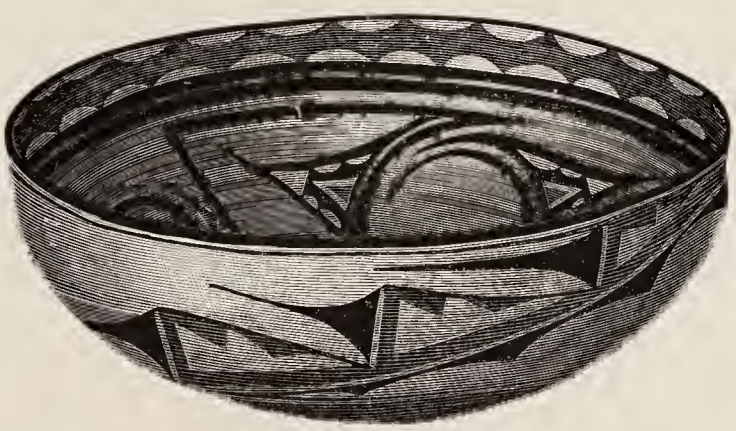
659–663. 659, (40183); 660, (40198); 661, (40202); 662, (40927), Fig. 424; and 663, (40932), Fig. 425.

Fig. 419



40139
(1/4)

Fig. 420



40931
(1/5)

Fig. 421

41171
(1/5)

Figs. 419-421.—Zuñi Eating Bowls.

Fig. 422

40014
(1/4)

Fig. 423

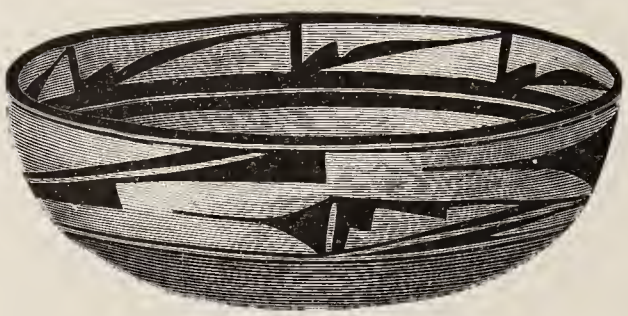
40028
(1/4)

Fig. 424

40927
(1/5)

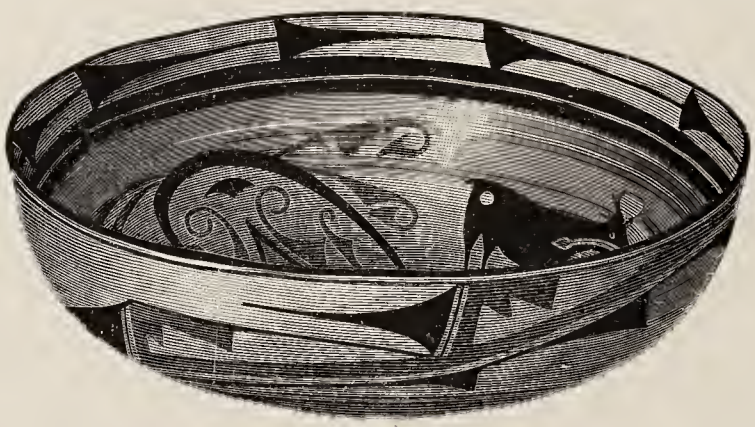
Figs. 422-424.—Zuñi Eating Bowls.

Fig. 425



40932
(1/4)

Fig. 426



40179
(1/4)

Fig. 427

40290
1/4

Figs. 425–427.—Zuñi Eating Bowls.

664–669. 664, (40951); 665, (40952); 666, (40960); 667, (40976); 668, (40977); and 669, (40016), may be grouped together, as strongly resembling each other in regard to their inner decorations.

670. (40027). Inner marginal band with diamond spaces and colored triangles, scrolls, and small rosettes or flowers below.

671. (40030). No inner band; geometrical figures.

672. (40035). Narrow simple marginal band; elk and scrolls.

673. (40179), Fig. 426. Each of the following specimens has a similar marginal band, but the inner central figures differ.

674–682. 674, (40037); 675, (40044); 676, (40187); 677, (40300); 678, (40937); 679, (40966); 680, (40969); 681, (40973); 682, (40040). Patch-work figures, resembling pieces of broken pottery.

683. (40157). Somewhat like Fig. 424, the perpendicular lines of the band being doubly scalloped.

684. (40169). Marginal band a vine with leaves and flowers; central figures similar to those on vase shown in Fig. 371.

685. (40182). No inner band; scroll figures.

686. (40190). No inner band; elks and geometrical figures.

687. (40201). Marginal band with triple lines similar to those in Fig. 424.

688. (40290). Shown in Fig. 427.

689. (40292). Marginal band similar to that on Fig. 427; scroll figures in central portion.

690. (40294). Fig. 430. In this the outer decoration varies in having the elongate triangle or lance point double, and the inner in having the figure of a mule or donkey.

691. (40304). No marginal band; scroll figures.

692. (40302). Fig. 429.

693. (40486). A broad bowl; inner marginal band, the upper portion of which has a line of diamond spaces. The under side of the oblique line on the outer surface is bordered with scrolls as in Fig. 375. This is a very large specimen, being eighteen inches in diameter. See Fig. 401.

694. (40928). Inner surface marked with geometrical figures.

695. (40970). No figures on the inner surface.

696. (40972). Inner decorations as in Fig. 419.

697. (40017). No outer decorations; inner surface with marginal band and large white cross; remainder brown.

698. (40015). Outer and inner faces marked with triangles and slender leaves.

699. (40024). Outer scalloped band, scroll figures internally.

700. (40022). Outer surface with scalloped band and large oblique diamonds; inner with double scalloped band and scrolls.

701, 702. 701, (40158); 702, (40159). Outer face without decorations; inner with large vermiform figures.

703. (40166). Both faces with oblique lines of scrolls.

704. (40192). Stems and leaves externally and internally.

705. (40195). Interior decorations profuse; scrolls, and diamond-shaped figures.
706. (40934). Four scalloped bands on outer face; scroll figures on inner surface.
707. (40935). No outer decorations; inside marked with a marginal band of dots and lines; central scrolls.
708. (40939). Both surfaces with geometrical figures.
709. (40950). Marked externally with double lance points; internally with scrolls.
710. (39954). Shown in Fig. 428. Here we see the head of the grotesque bird reduced to a simple scroll.

Brown or yellow ware. Decorations in black or red, without external ornamentation unless otherwise stated.

711–713. 711, (40011); 712. (40936); 713, (40962). Four large leaves forming a cross.
714. (40018). Broad external band of horizontal and oblique dotted lines. No figures on the inner surface.
715. (40032). External scalloped band; reversed pyramids or pueblos internally.
716. (40039). Broad marginal band of half pyramids, alternately reversed.
717. (40048). White vermiform figures.
718, 719. 718, (40154); 719, (40184). These are similarly marked, the margin in both being also white.

The following specimens are without decorations of any kind:

720–733. 720, (40019); 721, (40036); 722, (40160); 723, (40162); 724, (40165); 725, (40180); 726, (40307); 727, (40929); 728, (40953); 729, (40954); 730, (40959); 731, (40962); 732, 40963); 733, (40968).
734. (40155). Patch-work.
735. (40172). Four serrate or scalloped bands on outer face. Similar inner marginal band in outline; and outline pyramidal figures.
736. (40174). Outline pyramidal figures.
737–739. 737, (40173); 738, (40289); 739, (40964). Marginal band of double outline scrolls.
740. (39618). Brown ware with decorations in black. Colored Fig. 380.
741. (39592). Brown ware with decorations in black. Colored Fig. 382.

COOKING VESSELS.

These vessels are generally of medium size, though in some instances the dimensions vary exceedingly. Those used in cooking for feasts are quite large, sometimes with a capacity of about ten gallons; the smallest, designed only for family use, are less than four inches in diameter and not quite three inches high. They are of two general forms, one similar to the ordinary pots used on cooking stoves, the other bowl-shaped. Two specimens in the collection are provided with legs; to these the Zuñians apply the name *sä-mū yĕn-sü-qui-pä*. See Fig. 432. As a general rule, the rims of these vessels are flared, and on some of

Fig. 428

39954
($\frac{1}{3}$)

Fig. 429

40302
($\frac{1}{4}$)

Fig. 430

40294
($\frac{1}{5}$)

Figs. 428–430.—Zuñi Eating Bowls.

Fig. 431

41135
$\frac{1}{3}$

Fig. 432

41053
$\left(\frac{1}{4}\right)$

Fig. 433

41114
$\frac{1}{3}$

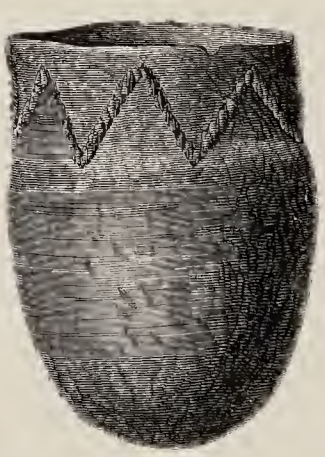
Fig. 434

41092
$\frac{1}{3}$

Fig. 435

40865
$\left(\frac{1}{3}\right)$

Fig. 436



41113
$\frac{1}{7}$

Figs. 431–436.—Zuñi Cooking Vessels.

them, close to the rim on the outside, are ear-like projections, which are probably intended as catches by which, with pokers or sticks, they can be removed from or arranged in position on the fire. They are never ornamented, and have no coloring other than that which is acquired in baking. These vessels are used in cooking such foods as contain liquids.

Three names are applied to cooking pots, having reference to size, viz: *päh-tēh-le* is the large cylindrical pot; the smaller pot of the same form is *päh-tēhl-tsān-nā*; and *wāh-li-äh-kä-tēhl-le* is the common cooking pot. The Olla or bowl-shaped pot, Fig. 433, is called *sä-mū-yēn.*

The following numbers belong to the *päh tēhl-tsān-nā* group and present no variations worthy of special notice.

742, 743. 742, (41113). Fig. 436; 743, (41114), Fig. 433. These illustrations represent a form and have the appearance of the so-called ancient ware; the latter specimen bears the impress of the grass which was produced in the baking process.

744. (40865). Fig. 435. Cooking pot.

The following numbers represent specimens of cooking pots of varying sizes, though generally small and of the form of No. 744, though some few present the appearance of bowls:

745–766. 745, (41115); 746, (41116); 747, (41117); 748, (41118); 749, (41119); 750, (41120); 751, (41121); 752, (41122); 753, (41123); 754, (41124); 755, (41125); 756, (41126); 757, (41127); 758, (41128); 759, (41129); 760, (41130); 761, (41131); 762, (41132); 763, (41137); 764, (41138); 765, (41140); 766, (41141).

The following belong to the *sä-mū-yĕn bowls:*

767–804. 767, (41055); 768, (41056); 769, (41057); 770, (41058); 771, (41059); 772, (41060); 773, (41061); 774, (41062); 775, (41063); 776, (41064); 777, (41065); 778, (41066); 779, (41067); 780, (41068); 781, (41069); 782, (41070); 783, (41071); 784, (41072); 785, (41073); 786, (41074); 787, (41075); 788, (41076); 789, (41077); 790, (41078); 791, (41079); 792, (41080); 793, (41081); 794, (41082); 795, (41083); 796, (41084); 797, (41085); 798, (41086); 799, (41087); 800, (41088); 801, (41089); 802, (41090); 803, (41091); 804, (41092), shown in Fig. 34.

805–826. 805, (41093); 806, (41094); 807, (41095); 808, (41096); 809, (41097); 810, (41098); 811, (41099); 812, (41100); 813, (41101); 814, (41102); 815, (41103); 816, (41104); 817, (41106); 818, (41107); 819, (41108); 820, (41109); 821, (41110); 822, (41111); 823, (41112); 824, (41133); 825, (41139); 826, (41143). This is an unburnt specimen of unusual form, resembling in this respect a sugar bowl, its margin and sides undulated.

827, 828. 827, (40853), bowl-shaped with conical bottom; 828, (41053), Fig. 432, pot-shaped, but with four legs.

829, 830. 829, (41134), 830, (41135), are really pitchers, as will be seen by reference to Fig. 431, which represents the latter, but they appear to be made for cooking purposes, as they are designated by the name *sä-mū-yĕn.*

LADLES.

Called by the Zuñians *sā-shō-kŏn-ne.* These are of two forms, one resembling somewhat an oyster-shell, the other with a handle resembling a spoon. The forms and decorations are shown in the figures. They are of white ware usually with figures on the inner surface, and of red ware without ornamentation. They vary in size from eight inches in length and five inches across the bowl to four and a half and two and a half inches.

831–839. 831, (39884); 832, (39894), Fig. 438; 833, (40430); 834, (40431); 835, (40432), flower in the bowl; 836, (40433); 837, (40460); 838, (40461); 839, (41254). With handles.

840–841. 840, (39895); 841, (39896), figures of elks in the bowl. Without handles.

842. (39929).

843, 844. 843, (40408) scrolls; 844, (40417), Fig. 440.

845, 846. 845, (40418); 846, (40419), this has a pretty marginal band, and the figure of a slender bird in the bowl.

847–851. 847, (40420); 848, (40421); 849, (40422), Fig. 439; 450, (40423); 451, (40424), resembles Fig. 440.

852–868. 852, (40425); 853, (40427); 854, (40428); 855, (40429); 856, (40434); 857, (40435); 858, (40437); 859, (40438); 860, (40439); 861, (40441); 862, (40442); 863, (40459); 864, (40462); 865, (40463); 866, (40675); 867, (40677); 868, (40678), Fig. 441.

869, 870. 869, (40679); 870, (40875), Fig. 437.

BASKETS.

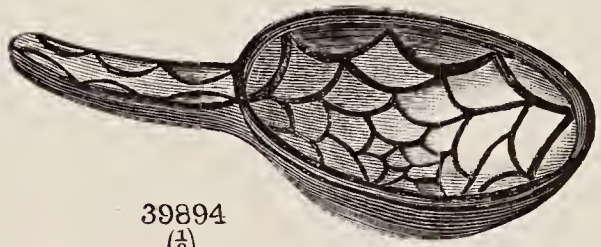
Called by the Zuñians, *āh-wēhl-wi-āh-pä-sāhl.* These vessels, which vary in size from four to eight inches in diameter and from two to five in depth, are in the form of bowls, sometimes with a handle over the top like a basket handle, sometimes without. The margin is either scalloped, as in Fig. 452, or terraced so as to resemble the section of a pyramid or pueblo, being cut in this form with a horse-hair while soft. They are always of white ware decorated with black. The margin is uniformly black, and there is often an inner and outer submarginal narrow band following the undulations or terraces. The figures most common, and in fact almost exclusively used, are those resembling tadpoles, but which, as I learned, are intended to represent a small crustacean or the larva of an insect common in the water-pools and streams of the Zuñi country; and the somewhat grotesque figures of the horned toad (*Phrynosoma*). These figures are placed both on the outer and inner surfaces, though the figure of the reptile is generally found on the outer.

These singular vessels are used by the Indians only in their sacred and ceremonial dances. In them is placed a small quantity of meal; they are then borne in the hands of the women, who, during the dance, take a small quantity of the meal, just as much as they can hold between the

Fig. 437

40875
(1/2)

Fig. 438



39894
(1/3)

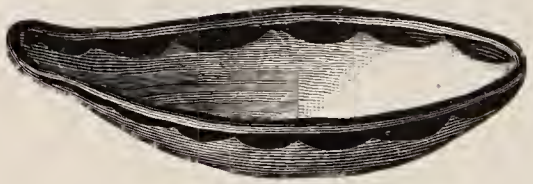
Fig. 439

40422
(1/3)

Fig. 440

40417
(1/3)

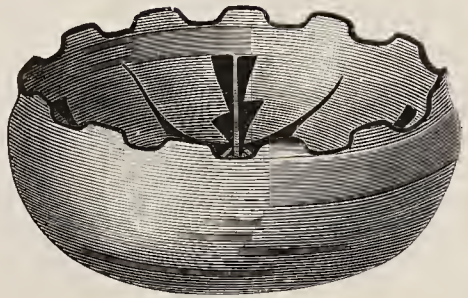
Fig. 441



40678
(1/3)

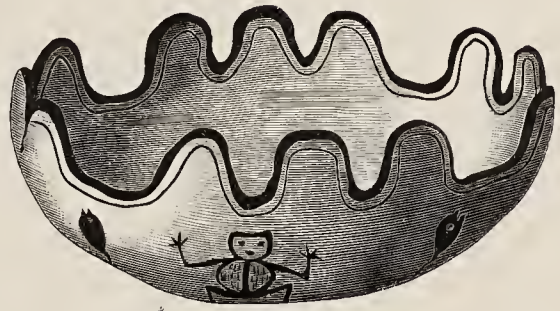
Figs. 437–441.—Zuñi Ladles.

Fig. 442



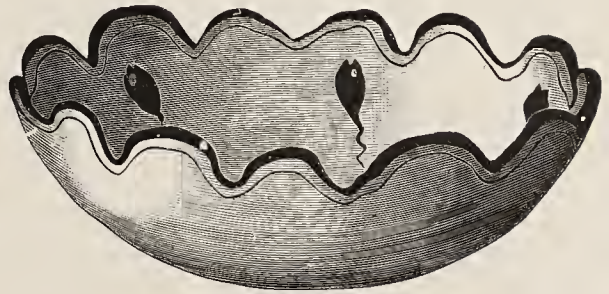
39971
(1/4)

Fig. 443



40075.
(1/3)

Fig. 444



40400.
(1/3)

Fig. 445

40371.
(1/3)

Fig. 446

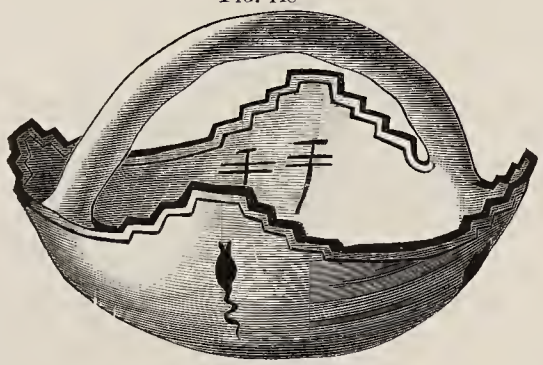
40377.
(1/3)

Fig. 447

40372.
(1/3)

Figs. 442–447.—Zuñi Clay Baskets.

Fig. 448

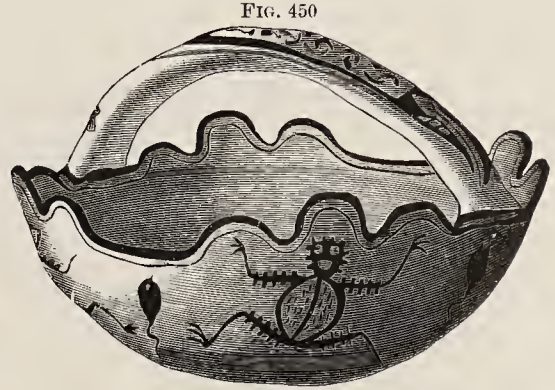


40359.
(1/3)

Fig. 449

41019.
(1/3)

Fig. 450

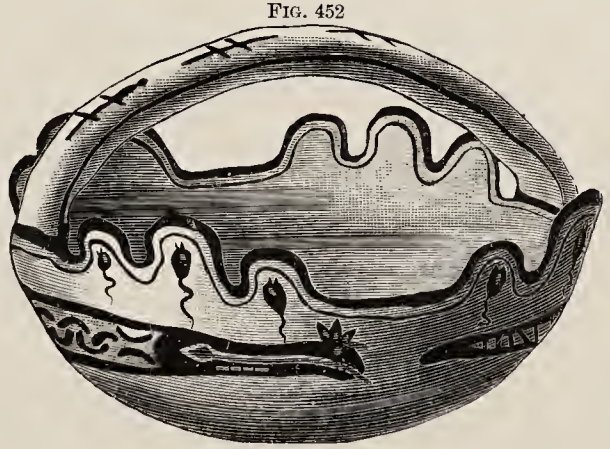


40356.
(1/4)

Fig. 451

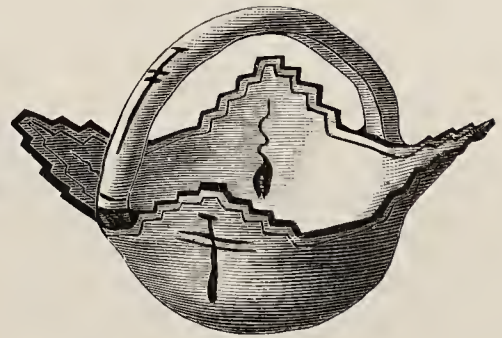
40355.
(1/3)

Fig. 452



40354.
(1/3)

Fig. 453



40379.
(1/3)

Figs. 448–453.—Zuñi Clay Baskets.

tips of the fingers, and sprinkle it on the sacred objects and on the heads of the persons leading in the ceremonies.

As the forms and decorations are correctly shown in the figures, I shall only notice those which are unusual.

Without handles; margin scalloped:

871–873. 871, (40074); 872, (40075), Fig. 443; 873, (40400), Fig. 444.

Without handles; margin terraced:

874. (40337). Figures of insects on outer surface.

875–881. 875, (40344); 876, (40364); 877, (40367); 878, (40368); 879, (40369); 880, (40370); 881, (40371), Fig. 445.

882–899. 882, (40372), Fig. 447; 883, (40373); 884, (40374); 885, (40375); 886, (40376); 887, (40377), Fig. 446; 888, (40378); 889, (40380); 890, (40381); 891, (40382); 892, (40383); 893, (40384); 894, (40385); 895, (40392); 896, (40393); 897, (40394); 898, (40396); 899, (40803), this specimen, which is but slightly burnt, is more globular in form than usual, and has mounted on each pyramid a small image, one human, one of a dog or fox, one of a chicken, and the other probably intended for a bird. This is really not a meal basket, but is carried in the dance for rain, and bears the name *tkhä-pō-kā-tēhl-le.*

900–902. 900, (41014); 901, (41015), this has in the place of the reptile the figure of a bird; 902, (41018).

903. (39971). Fig. 442. A Zuñi clay basket without handles; the form of the margin and inner decorations are unusual, and on this account and the fact that the little water animal does not appear on it, it is probably from some other tribe, though obtained at Zuñi.

904. (40354) Fig. 452. With handles; margin scalloped. The decorations on this basket are unusual. The chief figure and the most interesting one on this entire group of pottery is that of a snake encircling the body of the basket, on the head of which is a feather crest.

905. (41019). Fig. 449. A Zuñi dance basket, one of the most complete in form and decoration in the collection.

906–909. 906, (40356), Fig. 450; 907, (40390); 908, (40391); 909, (40806). This is more cup shaped than usual, and is ornamented with the geometrical figures common on bowls. It belongs to a distinct class of sacred vessels to which the name *tkhä-pō-kā-tēhl-le* is applied.

910–913. 910, (40336); 911, (40353); 912, (40355), Fig. 451; 913, (40357), varies in having the head of a bird. With handles; margins terraced.

914–922. 914, (40358); 915, (40360); 916, (40361); 917, (40362); 918, (40365); 919, (40366); 920, (40359), Fig. 448; 921, (40379), Fig. 453; 922, (40386). This and the three following specimens are small baskets called by the Zuñians *āh'-wēhl-wi-āh-pä-sāhl-tsān-nā.*

923–928. 923, (40387); 924, (40388); 925, (40389); 926, (40395). This and the two following bear the same figures as observed on Fig. 452. 927, (40397); 928, (40398).

929. (40399). This basket is ornamented with the conventional little water animal, inside and out; it also presents the head and tail of a snake, the body of which encircles the base of the basket. The head of the snake is decorated with a crest and a horn-like projection immediately before the eyes. The tongue and teeth are also represented in colors on the specimen. The rim is serrated and painted black with a small line conforming to the black band immediately under it.

930. (41016). Is without a handle, but noticeable for the representation of a bird, on each side of which are two of the little water animals.

931. (41017). Basket without handle and four pyramids with serrated edges, and representation of horned toad on sides.

932. (41019). Basket with handle, large toad on each side, and a dragonfly on each side of the toad.

PAINT CUPS.

These are always small, but vary in size from one and a half to three inches in height. They are usually in the form of water vases or globular jars, though sometimes of a true cup shape, and occasionally cubical. They are generally single, but quite often double, and occasionally triple and quadruple. To the large-sized single ones the Zuñians apply the name of *hèl-i-pō-kā-tēhl-le*; and to those of smaller sizes, *hĕl-i-pō-kā-tēhl-tsān-nā*. They are usually without handles, but sometimes these are present. The double ones are connected only by a bar extending from the body of one to that of the other; and the triple and quadruple ones in a similar manner. They are of red and white ware like the other pottery; the decorations on the white are similar to those already described, so far as they can be adapted to these small articles.

We shall give the numbers without remarks, except to note unusual forms and figures.

Single cups:

933–938. 933, (39881); 934, (39888); 935, (39938); 936, (39939); 937, (39944); 938, (39945); with figures of the little aquatic animal so frequently represented on the earthenware baskets used in rain dances.

939–942. 939, (39949); 940, (40056); 941, (40111); 942, (40112); square, box-shaped, of brown ware and very rude.

943–946. 943, (40323); 944, (40324); 945, (40325); 946, (40326); with terraced margin like that so common in baskets used in the sacred dances.

947–952. 947, (40327); 948, (40328); 949, (40329); 950, (40330); 951, (40331); 952, (40332). With meander band of simplest form.

953–961. 953, (40333), terraced margin; 954, (40334); 955, (40335); 956, (40338); 957, (40339); 958, (40340); 959, (40341), true cup with looped handles; 960, (40342); 961, (40343), with straight cylindrical handle.

962–968. 962, (40345); 863, (40346); 964, (40347); 965, (40348), form of the ordinary glass tumbler; 966, (40349); 967, (40352); 968, (40587). Mug-shaped, with broad, horizontal rim.

969–974. 969, (40588); 970, (40589); 971, (40590); 972, (40591); 973, (40592); 974, (40593). With simple meander band.

975. (40594). The artist has evidently attempted to figure on this the true meander (Greek fret), but has failed.

976. (40595). Marked with the grotesque horned toad so common on the earthenware baskets.

977–979. 977, (40596); 978, (40597); 979, (40598). Spherical in form, decorated with figures of the grotesque bird heretofore mentioned.

980–983. 980, (40599), bowl-shaped; 981, (40645); 982, (40647); 983, (40648). Bird with a scroll arising out of its back.

984–994. 984, (40649); 985, (40650); 986, (40651); 987, (40684); 988, (40826); 989, (40828), Fig. 455; 990, (40829); 991, (40830); 992, (39768); 993, (39982); 994, (39983).

Double cups (*hĕl-i-pō-kā-tēhl-i-pü-chin*). The little water animal is a common figure on these.

995–998. 995, (39931); 996, (39932), Fig. 454; 997, (39948); 998, (40350). This has the connecting bar arched so as to form a handle.

999–1004. 999, (40351); 1000, (40433); 1001, (40444); 1002, (40445); 1003, (40447); 1004, (40349). The last five are plain.

1005–1007. 1005, (40448); 1006, (40449); 1007, (40450). With scalloped margin, double bars, the upper one arched; grotesque figures of horned toad.

1008–1017. 1008, (40451); 10009, (40452); 1010, (40454); 1011, (40455); 1012, (40456); 1013, (40457); 1014, (40610), double bar or bar and handle; 1015, (40681), Fig. 456; 1016, (40682); 1017, (40854), square, without bar.

Triple cups:

1018–1023. 1018, (40605); 1019, (40606); 1020, (40609); 1021, (40680); 1022, (40693); 1023, (40856).

Quadruple cups, to which is applied the same Zuñi name as that given to those provided with triple and quadruple cups.

1024, 1025. 1024, (40612), Fig. 457; 1025, (40613). Brown, square, united directly at the sides without bars.

1026–1029. 1026, (40652); 1027, (40855); 1028, (40856), square; 1029, (40859), square.

CONDIMENT CUPS.

These are similar in form and decorations to the paint cups, and are also round and square, single, double, and quadruple. They are usually small, holding from less than half a pint to a pint. The different names applied to them will be given as they are reached in the list. The

double and quadruple ones are connected together in the same manner as the multiple paint-pots,

Single cups:

1030. (39878). Square with figures of chickens on the sides.

Mā-pō-kā-tēhl-le is the name by which the round or vase-shaped vessels are designated. They are numbered as follows:

1031. (39905). Fig. 459. The figures on this specimen appear to be intended as representations of some neuropterous insect, but possibly they represent birds.

1032–1037. 1032, (40653); 1033, (40654); 1034, (40655); 1035, (40656); 1036, (40657); 1037, (40658). Some of these appear, from the fragments of bars attached to them, to have belonged to double specimens.

1038, 1039. 1038, (40633); 1039, (40832). These two are red ware.

1040–1049. 1040, (40833); 1041, (40834); 1042, (40835); 1043, (41006); 1044, (41007); 1045, (41008), Fig. 458; 1046, (41170); 1047, (40603); 1048, (40606); and 1049, (40664), are square.

Double cups:

The round form has the same name as the single salt cup, but the square pattern is named *Mā'-pō-kā-thlē-lō-ne.* The following specimens belong to the latter class:

1050–1057. 1050, (39900); 1051, (39901); 1052, (40416); 1053, (40604); 1054, (40662); brown 1055, (40683); 1056, (40831); 1057, (40661).

1058–1068. The following are round: 1058, (40410); 1059, (40411); 1060, (40412); 1061, (40413); 1062, (40414); 1063, (40415); 1064, (40440); 1065, (40659); 1066, (40660); 1067, (40666); 1068, (40667).

1069. (40836). Quadruple. This and the last three preceding specimens are ornamented like Fig. 458.

EFFIGIES.

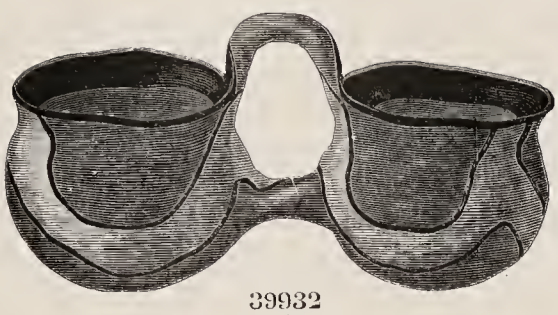
These figures, which are of small size, the largest not exceeding one foot in length, are quite rude, rendering it difficult in some cases to tell what animal is intended, the only exceptions to this rule being some figures of owls, in which the Zuñians appear to have made the nearest approach to the true form. They are generally of white ware, decorated with colors. Often these decorations are arbitrary, but as a general rule there has been an evident attempt to imitate nature so far as it could be done with the various shades of brown and black.

Some of the larger pieces, especially the owls, have an opening at the top or on the back, as though designed for water vessels.

The objects most commonly represented are owls (which largely predominate), antelope, elk, ducks, and chickens. The human form, the pig, sheep, horse, &c., are occasionally represented.

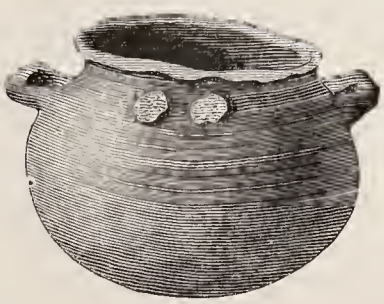
Owls, *mū-hū-que* and *mū-hū-que-tsān-nā.* These are nearly always represented with feet, and in most cases with legs. The body is usually disproportionately large, as are also the legs; the bill is small, and the

Fig. 454



39932
(1/3)

Fig. 455



40828
(1/3)

Fig. 456

40681
(1/2)

Fig. 457

40612
(1/2)

Fig. 458

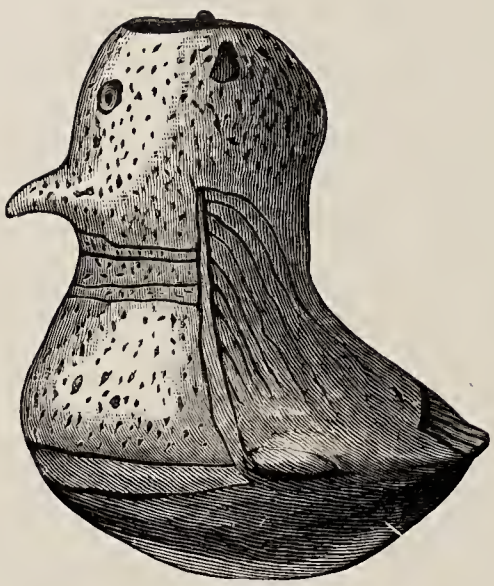
41008
(1/3)

Fig. 459

39905
(1/3)

Figs. 454–459.—Zuñi Paint and Condiment Cups.

FIG. 460



40059
(1/3)

FIG. 461

40140
(1/3)

FIGS. 460, 461.—Zuñi Effigies.

Fig. 462

40740
(1/4)

Fig. 463

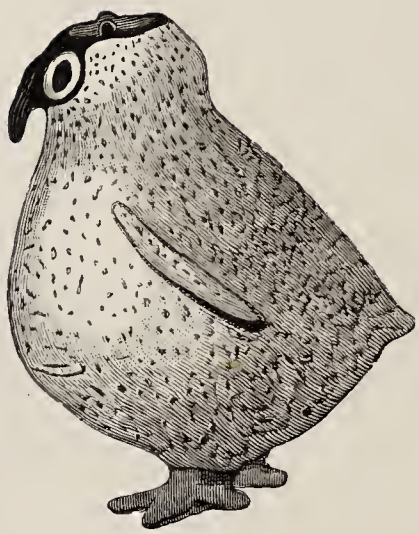
40738
(1/4)

Figs. 462, 463.—Zuñi Effigies.

Fig. 464

40739
(1/4)

Fig. 465



40066
(1/3)

Fig. 466

40743
(1/3)

Fig. 467

40754
(1/4)

Figs. 464–467.—Zuñi Effigies.

FIG. 468

40748
(1/4)

FIG. 469

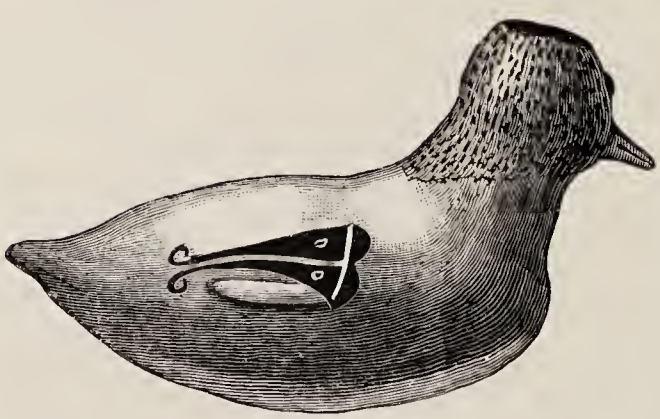
40767
(1/2)

FIGS. 468, 469.—Zuñi Effigies.

Fig. 470

41026
(1/3)

Fig. 471



39910
(1/3)

Figs. 470, 471.—Zuñi Effigies.

wings are represented by small lateral projections; the tail is short. The eyes are generally well represented. The feathers, as will be seen by reference to the figures, are quite well shown. The figures have an opening on the top of the head.

As there is a strong similarity in form, and the mode of decorating them is shown in the figures, no special remarks on the different specimens are necessary.

1070–1077. 1070, (39875); 1071, (39876); 1072, (39877); 1073, (39921); 1074, (39942); 1075, (39957); 1076, (40054); 1077, (40059), shown in Fig. 460; this is one of the very few without feet.

1078–1096. 1078, (40064); 1079, (40065); 1080, (40068); 1081, (40138); 1082, (40140), Fig. 461; 1083, (40261); 1084, (40142), small; 1085, (40262); 1086, (40141); 1087, (40142); 1088, (40409); 1089, (40734); 1090, (40735), without feet; 1091, (40736); 1092, (40737); 1093, (40738), Fig. 463, very large; 1094, (40740), Fig. 462; 1095, (40741); 1096, (40742).

1097–1112. 1097, (40743), Fig. 466; 1098, (40744); 1099, (40745); 1100, (40746), without feet; 1101, (40747); 1102, (40748), Fig. 468; 1103, (40749); 1104, (40750); 1105, (40751); 1106, (40752); 1107, (40753); 1108, (40754), Fig. 467; 1109, (40755); 1110, (40756); 1111, (40757); 1112, (40758), without decorations.

1113–1120. 1113, (40759); 1114, (40760); 1115, (40761); 1116, (40762); 1117, (40763); 1118, (40764); 1119, (40765); 1120, (40766), bearing a single young owl on its back.

1121. (40767). Shown in Fig. 469, bearing three young owls on its back.

1122. (41043).

1123, 1124. 1123, (40066), Fig. 465, and 1124, (40739), Fig. 464. Two owl-shaped water vessels from Zuñi.

Duck-shaped canteens, *ē-yāh-mē-hē-to*, are usually represented in a swimming posture, without feet, though occasionally the standing posture is adopted. The feather decorations are not so generally used as on the owls; several specimens bear on the back or sides the figure of the grotesque bird with spread wings. These specimens, like the owl images, have an orifice on the top of the head as though intended for water vessels, but are seldom used as such at the present time.

1125. (39910). Shown in Fig. 471.

The following are similar:

1126, 1127. 1126, (39879); 1127, (39889).

1128. (36911). With feet, in standing posture.

1129. (40063). With wings, without feet.

1130. (41023). This and the three following specimens have feather decorations and are small. *É-yāh-mē-hē-tō-tsān-nā* of the Zuñians.

1131–1133. 1131, (41024); 1132, (41025); 1133, (41027).

1134. (41026), Fig. 470.

Chickens. The cock, *tō-kōk-ke;* the hen, *tō-kōk-kā*. The general term applied to the young, without reference to sex, is *sä-pi-pe*.

1135. (39919). Represented in Fig. 472.

1136, 1137. 1136, (41028); 1137, (41029).

1138. (41030). Shown in Fig. 476.

1139, 1140. 1139, (41031); 1140, (41032).

1141, 1142. 1141, (41033); 1142, (41034).

1143–1147. 1143, (41035); 1144, (41036); 1145, (41037), Fig. 475; 1146, (41038); 1147, (41039).

1148–1151. 1148, (41040); 1149, (41041), Fig. 474; 1150, (41042); 1151, (41216), this piece represents a hen with three young chickens on her back, as in Fig. 473.

1152–1155. 1152, (39897); 1153, (41044); 1154, (41045); 1155, (41046), Fig. 477. Antelope. (*māh-ā-wi.*) The form and decorations are shown in Figs. 477 and 478.

1156–1161. 1156, (41047); 1157, (41048); 1158, (41050), Fig. 478; 1159, (41215); 1160, (41210); 1161, (41211).

1162. (41049). Elk, *shō-hi-ta.*

1163–1166. 1163, (41212), Fig. 480; 1164, (41213); 1165, (41214); 1166, (41217). Pigs, *pits-ō-te.* The figures show the forms and decorations with sufficient accuracy to make further description unnecessary.

1167. (41218). Ox, *wē-ä-si.* But a single example in the collection. Shown in Fig. 429.

1168–1170. 1168, (41219); 1169, (41220); 1170, (41221). Sheep, *Kān-ē-lū.* These, like the pigs, are usually marked with spots. One specimen has these spots in the form of an S, or sigmoid figure.

1171. (41222). The Big Horn (*Ovis montana*), *Hä-li-tkū.* This is the only specimen obtained and is a very rude figure, not easily recognizable.

1172. (41224). The Lynx. *Tē-pi.* Orifice in the top of the head. Decorated with spots.

1173. (41225). The Horse. *Tūsch.* Decorations, spots, and lines representing hair. A very poor figure; without the name would be unrecognizable.

1174. (41226). Man on horseback. *I-mäl-tō-yi.* The figure of the man is evidently intended to represent a Mexican, as shown by the ordinary hat and clothing. The saddle is represented, but there is no bridle or other trappings.

STATUETTES.

1175. (40071). Indian boy without clothing and wearing moccasins.

1176. (40076). *Wi-hā.* Baby.

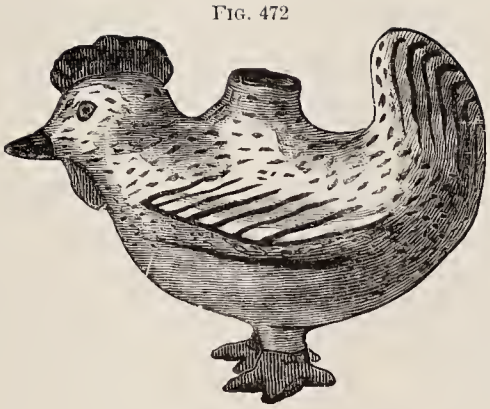
1177. (40860). *Klem-chi-ka.* Man with hat and clothing.

1178. (40861). Nude female figure.

1179. (40862). Man with hat and clothing.

1180. (40863). Nude female figure.

Fig. 472



39919
(1/3)

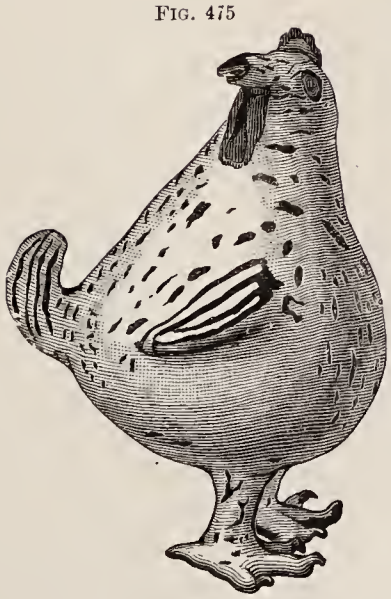
Fig. 473

41216
(1/5)

Fig. 474

41041
(1/3)

Fig. 475



41097
(1/4)

Fig. 476

41030
(1/3)

Figs. 472–476.—Zuñi Effigies.

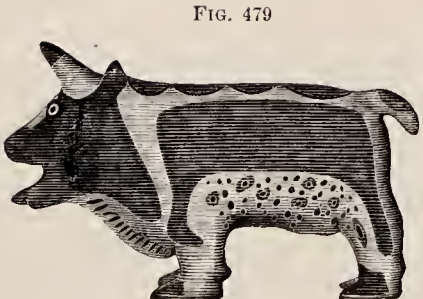
Fig. 477

41046
(1/5)

Fig. 478

41050
(1/3)

Fig. 479



41218
(1/5)

Fig. 480

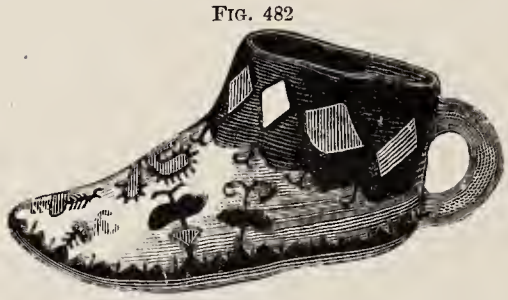
41212
(1/5)

Figs. 477–480.—Zuñi Effigies.

Fig. 481

39927
(1/3)

Fig. 482



40061
(1/3)

Fig. 483

40631
(1/2)

Figs. 481–483.—Zuñi Clay Moccasins.

1181. (41223). Human hand, *ah-sin-ne.* Represents the hand and wrist. Rather good figure. The wrist is surrounded by a colored scalloped band, as a bracelet.

Moccasins. *Mō-quā-we.* These are usually very correct in form, the differences between the right and left being always properly represented. Sometimes they are made singly, but usually in pairs, united directly or by a little straight bar or curved handle at the posterior end. White with color decorations, or brown or lead-colored without decorations, diminutive in size. The following specimens are without decorations:

1182–1190. 1182, (39924),; 1183, (39925); 1184, (39946); 1185, (39947); 1186, (40055) ; 1187, (40626); 1188, (40629); 1189,(40634); 1190, (40635). The last two have loops at the heel and were used as paint cups.

Decorated with colors:

1191. (40637). Pair still united.

1192. (39927). Shown in Fig. 481.

1193. (40060). With lines; handle at the heel.

1194, 1195. 1194, (40061), Fig. 482; 1195, (40628), decorated with grotesque bird.

1196. (40630). With same figure.

1197. (40631). Represented in Fig. 483.

1198. (40633). This pretty pair is profusely ornamented with serrate lines from the tip to the ankles.

1199, 1200. 1199, (40634) and 1200, (40636). Single, decorations, same as in the preceding; probably belong to one pair, as part of the connecting band remains on them.

1201. (40804). Anomalous. *Tkhä-pō-kā-tēhl-le.* In the form of a low or depressed vase, with two handles, decorated with scroll figures; margin straight.

1202. (40805). Vase-shaped, with single handle; a scalloped and an undulate band around the body. Margin straight.

1203. (42375). Toy house. Composed of clay and willow sticks. Made by children.

CLAYS AND PIGMENTS.

The following specimens are employed in the manufacture of pottery and for decorative purposes:

1204, 1205. 1204, (41230) and 1205, (41231). Are specimens of a whitish clay or kaolin, of which a solution is made and applied to the outer surfaces of earthenware. This whiting in a coarser state is used for white-washing their chimneys and rooms.

1206. (41265). Is a dark carbonaceous clay which the Zuñi Indians obtain from near the summit of a mesa on which stand the ruins of their ancient village—or, at least, where they claim to have resided during the Spanish invasion of their country. As this clay is one of the

principal elements in the manufacture of Zuñi pottery, a quantity of it was procured and numbered as one of the specimens of the collection.

1207. (41901). Small nodules of azurite used by the Indians in decorating their altars, &c.

1208. (41902). White clay or kaolin, same as Nos. 1204 and 1205.

1209. (41903). Finer quality of white clay.

1210, 1211. 1210, (41904) and 1211, (41905). Are specimens of the above of a coarser quality.

1212. (41906). *Tierra amarilla*, or yellow micaceous clay, of which the Rio Grande Indians make many varieties of vessels.

1213. (42342). A yellowish sandy clay, which is used as one of the coloring pigments in decorating pottery. This clay burns to a reddish hue and gives to the pottery those lines of a brick-red color.

1214. (42343). Very dark colored ore, resembling magnetic iron ore; this stone is reduced in a small mortar, and a paint made of it for decorating their ware black, which result is obtained by baking.

VEGETAL SUBSTANCES.

BASKETRY.

1215. (40108). A globular-shaped water basket, with a small neck, about two inches long and three in diameter.

1216. (40109). Double-lobed, canteen-shaped water basket, with both outer and inner surfaces coated with gum. The neck is about the size of that of the preceding basket. The centre is compressed to about the size of the neck; the bottom flat.

1217. (40110). Similar to the preceding.

1218. (40115). This specimen is a good representation of the basketry manufactured by the Zuñians, used for carrying peaches. It is well shown in Fig. 484.

1219–1235. 1219, (40116); 1220, (40117); 1221, (40118); 1222, (40119); 1223, (40120); 1224, (40121); 1225, (40122); 1226, (40123); 1227, (40124); 1228, (40125); 1229, (40126), Fig. 488; 1230, (40127); 1231, (40128); 1232, (40129); 1233, (40130); 1234, (40131); 1235, (40132), are Zuñi baskets of the same character, of coarse willow ware. Sizes and shapes somewhat similar.

1236. (40133). This specimen is an illustration of one form quite common. We found them in general use for bringing ripe peaches from the field. Fig. 484 shows very clearly the manner of weaving them.

1237–1240. 1237, (40134); 1238, (41135); 1239, (41136); 1240, (41137), are all samples of the same basketry. These baskets are called by the Zuñians *hu-chi-pŏn-nē.*

1241. (40143). A small platter-shaped corn basket of the same coarse structure. They are called *tsi-i-lē.*

1242–1247. 1242, (40144); 1243, (40145); 1244, (40146); 1245, (40147); 1246, (40148); and 1247, (40149) are similar examples of corn baskets.

1248–1257. 1248, (40401); 1249, (40402); 1250, (40403); 1251, (40404); 1252, (40405); 1253, (40406); 1254, (40407); 1255, (40478); 1256, (40479); and 1257, (40480) are a variety of examples of the corn basket or *hu-chi-pŏn-ne.*

1258. (40881). Toy basket of Navajo manufacture, of closely-woven fibre, about three inches in diameter. A string is attached to it for wearing it on the breast as an ornament, called *hō-in-hlün-tsān-nā.*

1259, 1260. 1259, (40882), and 1260, (40883). Small cup or rather saucer-shaped baskets similar in construction to the preceding two numbers.

1261. (40884). Is a corn basket of the same manufacture as the preceding, of much larger size, and called *hō-in-hlün-nā.*

1262–1264. 1262, (40917); 1263, (40918); 1264, (40919) *Tsi′-i-lē;* large-sized, coarsely woven, tray-like baskets.

1265. (40920). Toy basket; coarse, *tsi-i-lā-tsān-nā.*

1266–1268. 1266, (40921); 1267, (40922); 1268, (40923). Navajo water baskets, jug-shaped, *kǭ-sē-tŏm-mē.*

1269. (41208). Large flaring or bowl-shaped basket of Apache manufacture; water-tight; used for holding flour and meal; very compactly woven; called by the Zuñis *hō-in.*

1270. (41209). Very large specimen of the same ware woven with different colored fibres, so as to present a decorated inner surface.

1271. (41227). *Tklā-lim-ne* or basket with abrupt sides. Navajo manufacture.

1272–1275. 1272, (41228), Fig. 485; 1273, (41229); 1274, (41230); and 1275, (41231) are examples of the coarsely-woven flat basketry used frequently for winnowing small grain. The illustration shows the details sufficiently without further description.

1276. (41248). Basket tray for bread, of the closely-woven class, called *mi-tū-li-hō-in.*

1277. (41256). Toy basket, *tsi-li-tsān-nā.*

PADS.

The following are ring-shaped pads made of yucca leaves interwoven in such a manner as to leave the centre open sufficiently to fit the top of the head. These pads are used in carrying water, by placing the pad on the head into which the base of the vase fits. They are used also to hold water jars and vases on the ground, thus protecting the bottom of the vessels from wearing away. They are called in Zuñi *hā-kin-ne.*

1278–1287. 1278, (40464); 1279, (40465); 1280, (40466); 1281, (40467), 1282, (40468); 1283, (40469); 1284, (40470); 1285, (40471); 1286, (40472) are examples of this pad, of which Fig. 486, 1287, (40473), is an illustration.

The following are objects of the same kind:

1288–1292. 1288, (40474); 1289, (40475); 1290, (40924); 1291, (40925); 1292, (40926).

DOMESTIC IMPLEMENTS, TOYS, &c.

In the collection are a number of wooden spoons or ladles of various sizes. These utensils were not frequently met with. The readiness with which the Indians can make pottery or earthern ladles, a large number of which are in the collection, has caused these to supersede the former. The wooden spoons are always chiseled from a single piece of wood. See Fig. 490.

40876 (1/4)

FIG. 490.

1293–1297. 1293, (40876); 1294, (40877); 1295, (40878); 1296, 41020); 1297, (41022) are specimens of spoons and ladles of wood. The large ones are called *täm-shŏ-kŏn-nā-tsān* the smaller, *täm-shŏ-kŏn tsān nā.*

1298. (41276). A wooden chair, made entirely of wood and in imitation of a common chair, ornamented with earvings.

1299. (42292). Meat-block in the form of a stool, one side of which is used for chopping, the other to sit upon.

1300. (40827). Rotary drill, with stone disk and flint point, usually employed in perforating turquoise and other hard substanees for ornaments. See Figure 494. Called by the Zuñis *klā-tŏ-ne.*

1301. (40809). A small rectangular wooden box with a lid, used as a treasure-box, for holding choice trinkets and ornaments sueh as feathers, &c., called *la-pŏ-ka kle-tŏn-tsān-nā.*

1302. (41279). Wooden gun rack, made of pieces of flat wood, of a rectangular form, with notches in the upright sides for holding guns and bows. It is common in Zuñi.

1303. (41192). A wooden comb used in connection with the loom. It is provided with teeth about one inch long; these teeth are plaeed between the perpendicular threads and with the hand brought down firmly on the cross-threads or yarn until it is perfectly compact. The blankets woven in this manner are water-tight. This comb is ealled *o hā-nā-pā-ne.*

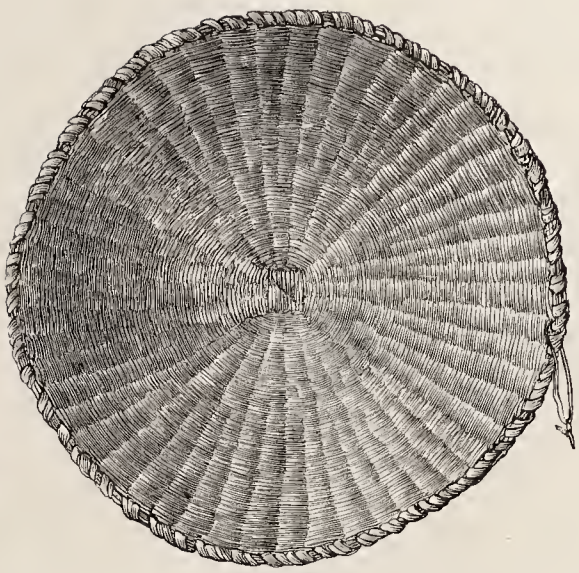
1304–1307. 1304, (42043); 1305, (42044); 1306, (42045); and 1307, (42046); are eombs above described, used with looms.

1308. (40810). A wooden eomb of the same charraeter.

Fig. 484

40133
(1/4)

Fig. 485

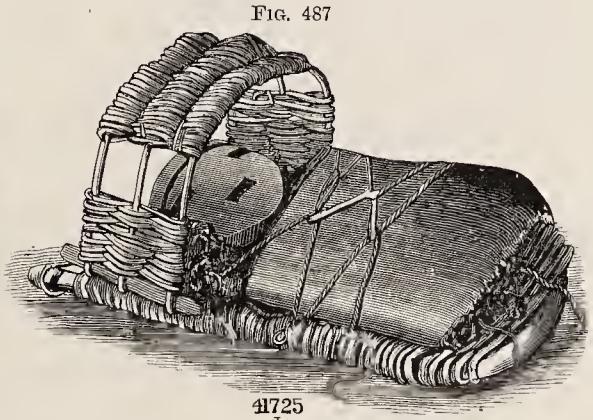


41228
(1/4)

Fig. 486

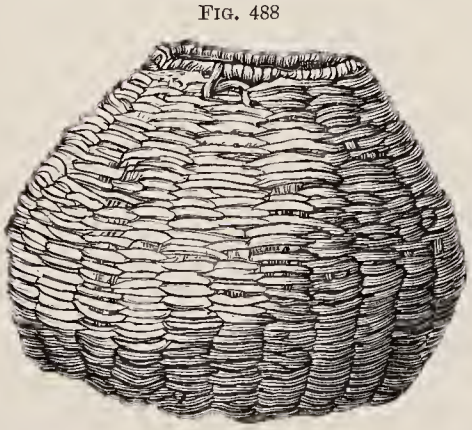
40473
(1/3)

Fig. 487



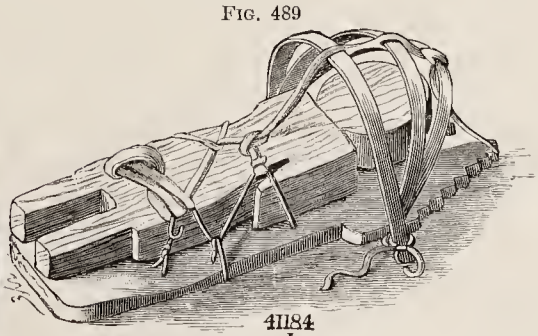
41725
1/4

Fig. 488



40126
(1/3)

Fig. 489



41184
1/4

Figs. 484-489.—Zuñi Basketry, and Toy Cradles.

1309. (41700). Bundle of fine grass stems for a comb.

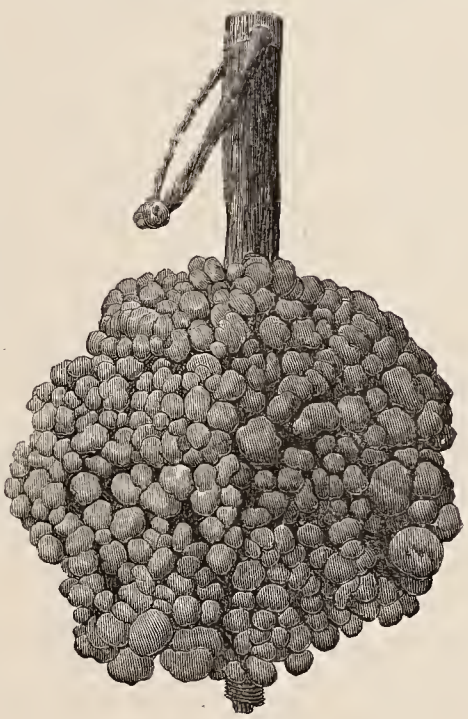
1310. (41282). Comb and brush combined, made from dried grass stems; one end is used as a comb, the other as a brush.

1311. (41277). Wooden spade or shovel quite like an ordinary spade, used by the Indians for shoveling snow from the roofs of their houses, and for taking bread from their bakeovens. See Fig. 495.

1312. (40879). Wooden digger and corn-planter, called *tā-sā-quin-ne.* This is the only specimen of the kind in the collection. The foot is used in digging as we use a spade. In making holes in the ground for planting grain, one foot is placed on the short projection, and the individual using it walks along, each alternate step making a hole in the ground into which to drop the grain. See Fig. 496.

1313. (41262). Medicine sticks to influence rain. These little sticks are found hidden beneath the rafters of nearly every house in Zuñi.

1314. (41275). Wooden war-club, which the Zuñis claim was one of their original weapons of war. See Fig. 491.



41856
(1/3)
FIG. 497.

1315. (41856). A peculiar warty squash or gourd hollowed out and filled with pebbles to make a rattling sound, used in most of the dances. See Fig. 497.

1316. (41281). Gourd dance rattle.

1317. (41196). Squash or gourd for making rattles.

1318. (41197). Smooth-surfaced squash for rattle.

1319. (41189). Gourd painted red, yellow, and black, which is suspended to a pole held in the dance called by the Zuñis *tŏm-tschŭl-tŏn-ne.*

1320. (41190). Yellow gourd, with black band, and having alternate squares of white and black around the centre, through which a stick is passed for holding it in the hand during a dance. The gourd is placed on the stick in an inverted position. On the top of the stick a bunch of feathers is attached. This ornament is generally used in their social dances, in which the young men and women mingle. See Fig. 492.

1321. (41193). Water gourds.

1322. (41194). Gourd with opening in the end of the handle.

1323–1334. 1323, (41198); 1324, (41199); 1325, (41200); 1326, (41201); 1327, (41202); 1328, (41203); 1329, (41204); 1330, (41205); 1331, (41206); 1332, (41207); 1333, (41234); 1334, (41235), are wooden birds carved and painted to represent such as they are accustomed to seeing daily. Those represented are the magpie, prairie lark, oriole, humming bird, and swallow. The latter is shown in Fig. 493. The object is attached to a stick in such a manner that the wings can be made to move up and down by pulling a string, in imitation of the bird in flight.

1335. (41184). Toy or baby cradle, called *wi-hā-klem-tsān-nā*, (see Fig. 489), with a wooden doll arranged to show the manner of securing children in cradles.

1336. (41275). Cradle with wooden doll, Fig. 487, composed of woven willows.

1337. (41724). Toy drum, *tō'-sō-än--än-tōm-me.*

1338. (41285). Spinning top.

FOODS.

1339. (40905). *Wia-vi*, or wafer bread.

1340. (41261). Meal from Indian maize.

1341. (41263). Chili, or ground red pepper.

1342. (41264). Dried peaches; Indian style.

1343. (41266). Dried squash; Indian style.

1344. (41267). Indian beans.

1345. (41271). Corn parched by the Indians.

1346. (41272). Native salt of Zuñi.

1347. (41273). Zuñi bread.

1348. (41274). Zuñi bread used in the dance.

1349. (41280). Zuñi bread.

1350. (41283). Zuñi sprouted wheat, from which a juice or wine is obtained.

1351. (42050). Horse beans cultivated by the Indians.

MEDICINES AND DYES.

1352. (41172). Root used as medicine.

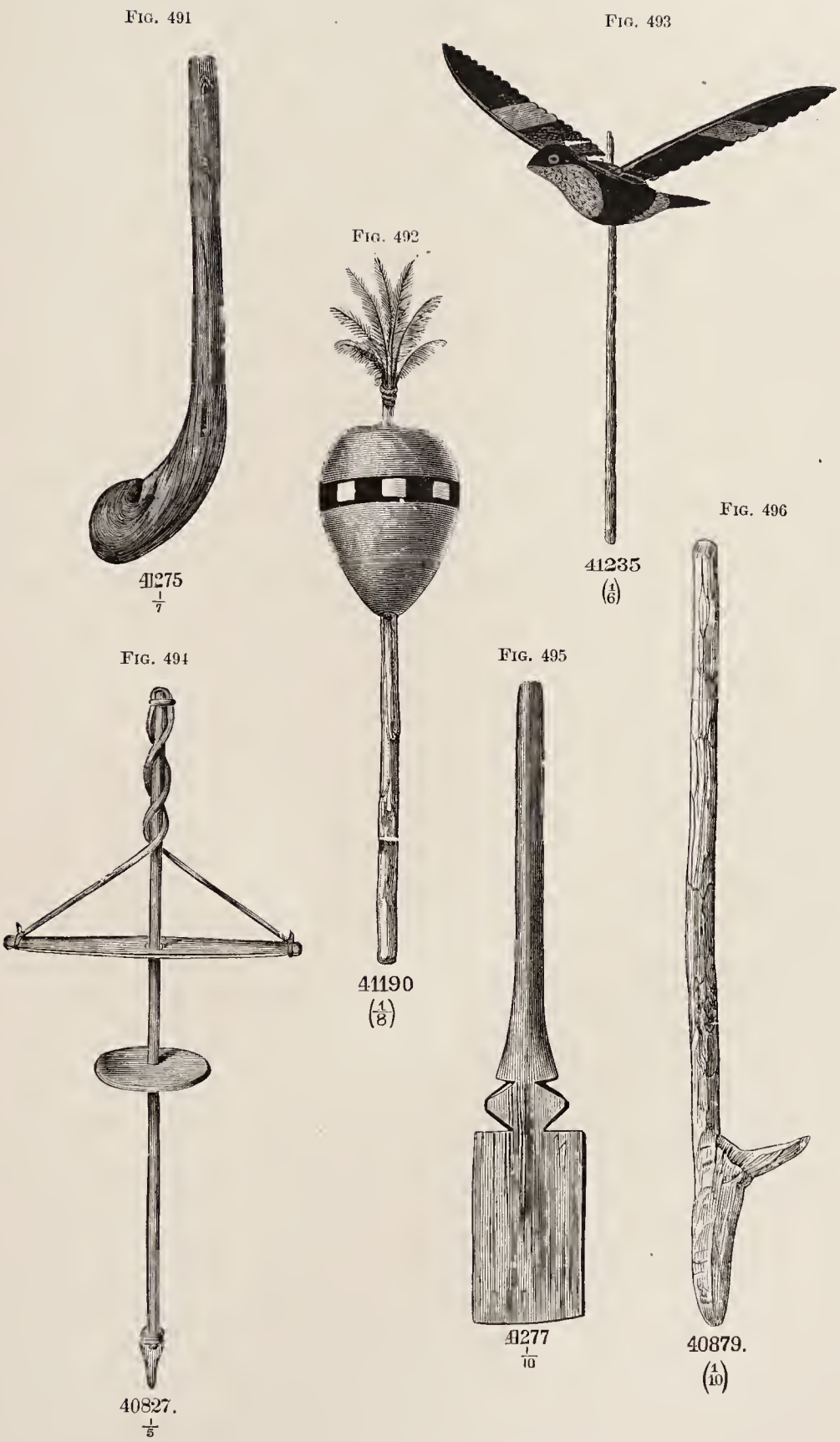
1353. (41173). Root used as medicine.

1354. (41175). Root used as medicine, called by the Zuñians *āh-quā-ā-we.*

1355. (41174). Bark for coloring buckskin red.

1356. (41907). Plant for coloring black.

1357. (41908). Plant used for decorating pottery black, the oil or juice of which is used.



Figs. 491-496.—Zuñi War Club, Dance Ornaments, etc.

Figs. 500–502 – ZUÑI SASHES.

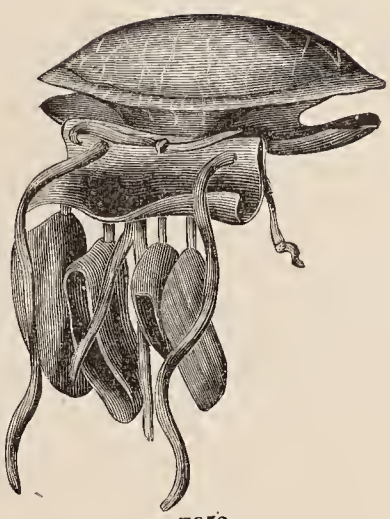
¼ NATURE.

ANIMAL SUBSTANCES.

HORN AND BONE.

1358. (41284). Bone awl, with iron shaft.

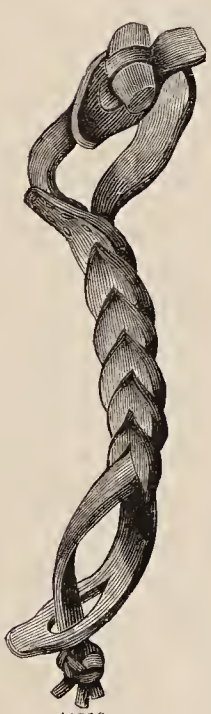
1359–1361. 1359, (41851); 1360, (41852); and 1361, (41853), Fig. 498, are specimens of a rattle or musical instrument made from the shell of a turtle which is highly esteemed by the Pueblo tribes. The flesh of the turtle is carefully removed from the shell, leaving it hollow. To the edges of the breast plate are attached the toes of goats or sheep. These toes coming in contact with the hollow shell produce a peculiar sound, in keeping with the sound caused by the gourd rattles used in the same ceremony. The rattle is fastened to the rear of the right leg near the knee when employed in the dances.



41853 ⅓

FIG. 498.

SKIN.



41219 ⅕

FIG. 499.

1362. (41287). Lasso or lariat of plaited leather.

1363. (41219). Hopple strap; ends locked by small blocks of wood. See Fig. 499.

WOVEN FABRICS.

1364. (41251). Moki scarf, from Zuñi.

1365. (41252). Child's shirt of calico, *ō-chū-ōtsn-nā.*

1366. (41253). Squaw's knit leggings.

1367, 1368. 1367, (41801) and 1368, (41807). Are sashes of Moki manufacture, handsomely embroidered at each end in colors.

1369, 1370. 1369, (41712) and 1370 (14713). Are worsted woven belts for the waist, called *eh-ni-ne.* See Fig. 500.

1371. (41714). Worsted garter, called *eh-ni-ne tsān-nā.*

1372. (41801). Finely-woven white cotton with embroidered edge, of which the following are examples:

1373–1375. 1373, (41802); 1374, (41803), and 1375, (41804).

1376. (41805). Blue woolen searf.

1377. (41806). Scarf.

1378. (41807). Sash. See Fig. 501.

1379. (41808). Sash. See Fig. 502.

1380. (41809). Navajo blanket, used as a squaw's dress, with red border.
1381. (41810). Similar blanket.
1382. (41811). Navajo blanket with blue border. The following are similar to the preceding:
1383–1388. 1383, (41812); 1384, (41813); 1385, (41814); 1386, (41815); 1387, (41816); and 1388, (41817).
1389. (41818). Saddle-blanket, in colors.
1390–1395. 1390, (41819); 1391, (41820); 1392, (41821); 1393, (41822); 1394, (41823); and 1395, (41824), are also saddle-blankets.
1396. (41825). Imperfect large robe of wool.
1397. (42223). Sample of green yarn used by the Zuñians in making belts and blankets.
1398. (42201). War trophy, worn as shoulder belt; the band which passes over the shoulder is ornamented with arrow-points which are fastened in the plaiting. The plaited portion is made of the skin dress of a slain Navajo. So highly did the Zuñians prize this trophy that I was obliged to promise its return before I was allowed to take it away. A sketch was made of it, after which it was returned to the Indians.
1399. (42268). A Zuñi charm, made from a piece of shell rounded and pierced near one end to receive a string.

41726
(1/6)
FIG. 503.

1400. (41726). Head-dress worn by maidens in dances. Fig. 503 shows the form. The flower is sometimes red and yellow; this is attached to one side of the band which goes over the head; to the other side is attached a horn-shaped ornament. The flower is called *ātē ăn-ne*. The horn on the left is called *saï'ănne*. The band that encircles the head is called *gĕm-me*. The following are articles of the same kind, differing only in ornamentation:
1401–1408. 1401, (41727); 1402, (41728); 1403, (41729); 1404, (41730); 1405, (41731); 1406, (41732); 1407, (41733); and 1408, (41734).
1409. (41698). Wool rosette; part of head-dress.
1410. (41699). Cotton rosette; part of head-dress.
1411. (41697). Charm of wild turkey feathers.

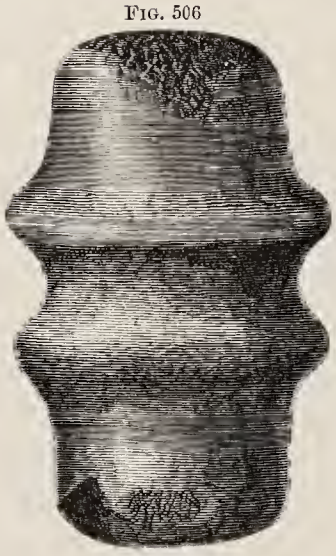
Fig. 504

42207
(1/3)

Fig. 505

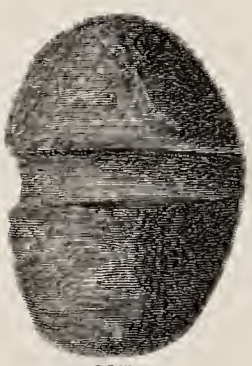
42208
(1/3)

Fig. 506



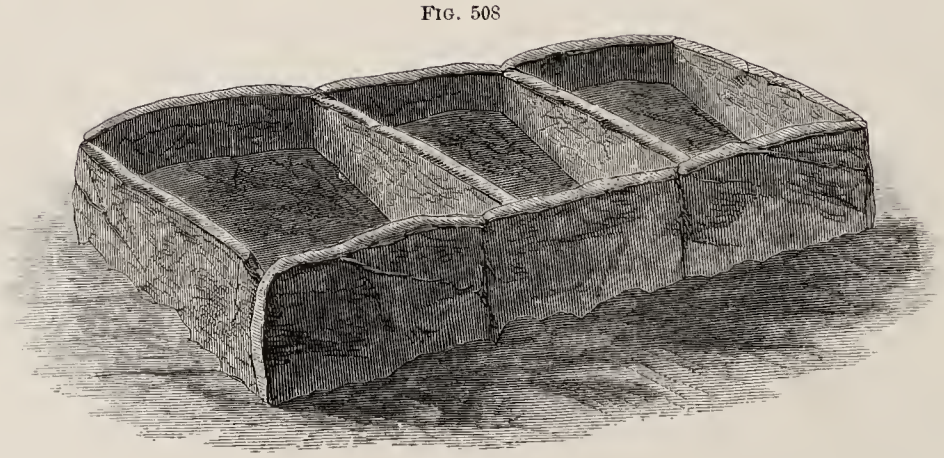
42337
(1/3)

Fig. 507



42213
1/3

Fig. 508



42311

Figs. 504-508.—Wolpi Axes and Metate.

COLLECTIONS FROM WOLPI.

ARTICLES OF STONE.

AXES, HAMMERS, &c.

1412. (42206). Grooved axe of black fine-grained sandstone, about eight inches long; water-worn to its present shape, afterward grooved to render it suitable for use.

1413. (42207). Fig. 504. Grooved axe, of basalt.. The only specimen of this particular form in the collection.

1414. (42208). Fig. 505. Large stone celt of coarse sandstone, light gray color. It is shaped more like a wedge than the cut indicates. It is difficult to conjecture what this implement could have been used for. The sandstone of which it is made is too soft for either splitting or hammering. As it is about ten inches long and has four flat sides it may have been a grinder, as many of those implements are not unlike it in length and appearance. Its surface is quite rough and pitted.

1415. (42209). Sandstone maul, grooved, surface rough.

1416. (42210). Triangular-shaped maul, grooved in the middle; of coarse basalt. This and similar mauls evidently at one time had handles fixed to them, but at the present day it is not uncommon to see the modern Pueblo Indians holding them in the hand to crush their grain, chili or red-pepper pods in round mortars.

1417. (42211). Grooved axe of basalt.

1418. (42212). Small grooved axe of metamorphic rock.

1419. (42213). Fig. 507. Water-worn boulder of quartzite, grooved around the centre.

1420. (42214). Basaltic maul, grooved in the middle like the preceding. Used by the Indians at the present day for pounding chili or red pepper.

1421. (42216). Groved axe of greenstone, quite long, well shaped, and nicely polished.

1422. (42217). Grooved axe of greenstone, similar to the preceding.

1423. (42218). Grooved axe of sandstone; top square.

1424. (42219). Axe of basalt, grooved on three sides.

1425. (42220). Grooved axe of greenstone.

1426. (42221). Grooved axe of quartz.

1427. (42222). Grooved axe of sandstone. Groove very near the top.

1428. (42223). Grooved axe of greenstone, well polished.

1429. (42224). Grooved axe of schistose rock, much flattened, with a small second groove below the larger one.

1430. (42225). Small grooved axe of greenstone, body rather square, top quite small, with the groove very near it.
1431. (42226). Axe of basalt, grooved on three sides near its top, which is flat.
1432. (42227). Grooved on three sides.
1433. (42228). Grooved axe.
1434. (42319). Grooved axe made from a fragment of a grinder.
1435. (42320). Same as preceding.
1436. (42321). Rough chipping or stone hammer.
1437. (42322). Large grooved maul of a ferruginous substance.
1438. (42323). Large egg-shaped grooved maul of coarse sandstone.
1439. (42326). Large grooved maul of irregular shape and surface; fine-grained sandstone.
1440–1447. 1440, (42327); 1441, (42328); 1442, (42329); 1443, (42330); 1444, (42331); 1445, (42332); 1446, (42333); 1447, (42334), are all quite similar to the two preceding mauls, and are all of sandstone.
1448. (42335). A very large grooved maul, almost square, and weighing about fifteen pounds.
1449. (42336.) Grooved maul of very coarse-grained sandstone; short and thick.
1450. (42337). Fig. 506. Grooved maul of compact sandstone. The body of the maul is almost round, though the cut makes it appear flat. Several such specimens were collected, and in all instances they show that they have been better preserved than the axes. This is probably due to the fact that their shape adapts them to grinding foods and grain, and hence they are not used for splitting or cutting.
1451. (42339). Rough stone maul of sandstone, grooved in the middle.
1452. (42350). Small grooved axe of sandstone from the ruins of Pecos.
1453. (42246). Celt of a very black slate stone.
1454. (42247). Celt. This is a very fine specimen of yellow polished slate of about the same texture as the preceding one. It is about twelve inches long, and tapers gradually from the broad edge to the top.

METATES, OR GRAIN-GRINDERS, AND PESTLES.

1455–1460. 1455, (42279); 1456, (42287); 1457, (42289); 1458, (42309); 1459, (42310); 1460, (42311), are ordinary specimens of the metate placed together in the shape of a mill. See Fig. 508.
1461, 1462. 1461, (42313), and 1462, (42314), are rubbing stones.
1463. (42338). Broken metate rubber.
1464. (42249). Rubbing stone.
1465. (40139). Rude rubber of silicified wood.
1466. (42274). Small quartz rubber.
1467. (42275). Small greenstone rubber.

1468–1473. 1468, (42276); 1469, (42277); 1470, (42278); 1471, (42316); 1472, (42317); 1473, (42318), are all fragrants of rubbers.

1474. (42290). Round sandstone pestle, each end ovate.

1475. (42294). Square sandstone pestle.

1476. (42295). Small round pestle, with rounded ends.

MORTARS, PESTLES, ETC.

Nearly all the pestles and mortars from Wolpi present evidences of age. They are nearly all of coarse sandstone, and were used for bruising food and grain. They are usually quite large, heavy, and round. As they are generally of soft yielding rocks, the cavities are worn very deep in most of them.

1477. (42281). Large flat food mortar.

1478. (42282). Paint mortar, made from a round sandstone boulder about five inches in diameter.

1479. (42283). Grain mortar.

1480. (42284). Mortar made from a round somewhat flattened sandstone boulder.

1481. (42285). Food mortar of indurated sandstone, about four inches thick and eight inches in diameter, irregularly round, the depression being about three inches deep.

1482. (42286). Mortar for crushing grain; this is an unusually fine specimen. It is about seven inches high, and an almost round body, about an inch and a half thick at the top of the rim; the cavity is quite a perfect oval in shape, about five inches deep; bottom flat.

1483. (42288). Mortar similar to the above, but having a projection on one side like the ear of a kettle.

1484. (42291). Mortar and pestle. The mortar is nearly square; cavity about five inches deep and seven in diameter. The pestle has a groove round the middle.

1485. (42292). Paint mortar about one inch thick and nearly square.

1486. (42293). Round quartzitic boulder; one side flat, the other with a small cavity.

1487. (42307). Bowl-shaped food mortar, about ten inches in diameter and five inches high.

MISCELLANEOUS OBJECTS.

1488. (42270). Stone knife with two notches or grooves near the large end.

1489. (42271). Forty specimens of arrow-heads and small perforators, flint and agate; most of them very well shaped.

1490. (42253). Sandstone gaming ball, painted.

1491–1493. 1491, (42254); 1492, (42255); and 1493, (42256), are all sandstone gaming balls.

1494. (42257). Fig. 509. Hollow tube. The figure represents one made

from potters' clay, the other is of siliceous material. These pipes are not in use at the present time, but are frequently found around the ruins and in possession of the Indians.

1495. (42261). Stone image, probably intended to represent a rabbit. It is of fine-grained stone. Shown in Fig. 513. There are quite a number of these little images from Wolpi and Zuñi; as they appear to represent rabbits, it is presumed that they are quite old, and possibly antedate the introduction of domestic animals among the tribes.

1496. (42296). Small paint muller of jasper.

1497. (42297). Square quartzitic paint muller.

1498. (42298). Triangular paint rubber of quartz.

1499–1503. 1499, (42299), quartz; 1500, (42300); 1501, (42301); 1502, (42303); and 1503, (42304), are all quartz paint pestles made from half sections of small semi spherical boulders; the large end, which is flat, being used for the grinding part.

1504. (42305). Part of a grooved axe.

1505. (42306). Rubbing stone with four rubbing surfaces.

1506. (42262). Fig. 512. This undoubtedly represents some animal.

1507. (42263). Fig. 510. This evidently represents some animal other than the rabbit. The body is long and slender, and is provided with a tail.

1508. (42264). Small sandstone image, which is a good representation of a bear; grooved around the neck, with mouth and eyes and short tail. None of these little images are provided with anything more than short stubs for limbs.

1509. (42265). Very small sandstone image, quite similar to No. 1507.

1510. (40114). Wolpi neck ornament, Fig. 511, *hu-wat-he-qua-ve*, of red slate stone notched at each end, as shown in the cut, and perforated at the upper edge to receive a cord, with which it is suspended to the neck. Though a rare ornament, it possesses no particular known significance.

ARTICLES OF CLAY.

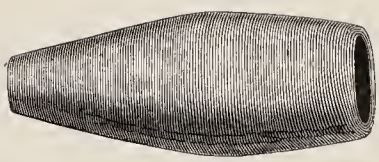
WATER VASES.

These are of the usual form, and for the most part of the usual size found at Zuñi; but there are also a number of very large specimens of the white ornamented, black, and red ware, having a capacity of ten or twelve gallons.

White decorated ware:

1511. (41356). Decorations exactly the same type as that shown in Fig. 359, except that there is a regular meander around the shoulder. The type is shown in Fig. 514.

Fig. 509

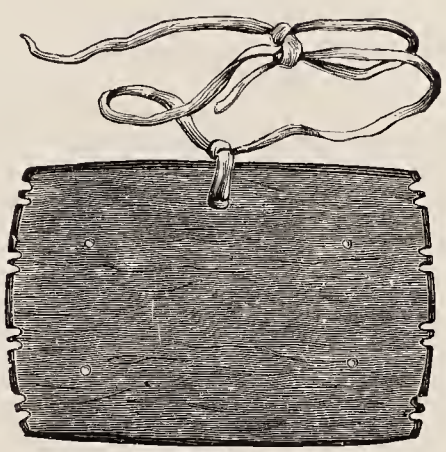


42257
(1/2)

Fig. 510

42263
(1/2)

Fig. 511



40114
(1/2)

Fig. 512

42262
(1/3)

Fig. 513

42261
(1/3)

Figs. 509–513.—Wolpi Pipe, Effigies, and Ornament.

Fig. 514

41609
(1/4)

Fig. 514.—Wolpi Water Vase

Fig. 515

40646
1/7

Fig. 516

42371
1/7

Figs. 515, 516.—Wolpi Cooking Pots.

The following belong to the same type as the above, the variations being but slight, the large eireular space with scroll being the chief charaeteristie:

1512. (41601). Figure on the neek as on the body of Fig. 372.

1513. (41602). Shown in Fig. 514.

1514. (41603). The bloek containing the smaller eirele is here solid and square; there is a zig-zag band around the neck as on the margins of some Zuñi bowls.

1515. (41604). This varies in having in place of the bloek with the small circle, a regularly eheekered bloek.

1516. (41606). This has only the large diamond figures on the body, and a band of s's round the shoulder.

1517. (41607). Like No. 1514.

1518. (41454). With handles on sides; fringe-like band around the shoulder.

1519. (41455). Simple linear band around the body.

1520. (41456). Figures of a trident or three-pronged fork; and ladle on the body.

The following are plain brown and red ware, some of them very large. The neck is but slight, and they are often more pot-shaped than olla form. Without ornamentation.

Brown or red.

1521–1533. 1521, (41632); 1522, (41633); 1523, (41635); 1524, (41636); 1525, (41637); 1526, (41638); 1527, (41639); 1528, (41640); 1529, (41641); 1530, (41642); 1531, (41643); 1532, (41649); 1533, (41650).

1534. (41644).

1535. (40646). Fig. 515.

1536. (41647).

1537. (41648).

1538. (42374). Very large pot, used for eooking. Name, *nu-a-mash-pe.* Represented in Fig. 516.

WATER JUGS AND JARS.

These are similar to those obtained at Zuñi; sub-globular in form, one side more distinetly flattened on whieh to lie, the other very eonvex. Usually with two handles, sometimes loops, and sometimes studs or knobs. Oeeasionally ornamented white ware, but most generally unadorned brown or red ware. The latter showing, on some pieces, at least, a slight, perhaps aeeidental, glazing. They vary in size from six or seven gallons down to less than a pint.

As the various figures used in deeorations have been deseribed, only those which are unusual will be notieed here.

White decorated ware:

1539. (41320). Underside as usual, blown. Sealloped band in direetion of mouth and handle, transverse double sealloped band aeross the upper half.

1540. (41362). Similar to the last.

1541. (41342). Simple bands and scrolls.

1542, 1543. 1542, (41401) and 1543, (41447). Similar.

Brown ware without ornamentation:

1544–1567. 1544, (41321); 1545, (41322); 1546, (41323); 1547, (41324), 1548, (41325); 1549, (41326); 1550, (41327); 1551, (41328); 1552 (41329); 1553, (41330); 1554, (41331); 1555, (41332); 1556, (41333); 1557, (41334); 1558, (41335); 1559, (41336); 1560, (41337); 1561, (41338); 1562, (41339); 1563, (41340); 1564, (41341); 1565, (41343); 1566, (41344); 1567, (41345).

1568–1569. 1568, (41609) and 1569, (41611). These have only the large diamond figures on the body, and a zig-zag line around the neck.

1570. (41610). The large diamonds serrate on the outer margin; neck with doubly oblique serrate lines.

1571. (41613). As in Fig. 514, except that the neck, instead of the zig-zag, has oblique diamonds.

1572. (41614). This varies from the preceding in having only a narrow scalloped band aroung the neck.

1573. (41620). Only the large scrolls, nothing on the neck.

1574. (41622). Similar to the preceding, except that each alternate scroll is replaced by a rosette in a circle.

1575. (41615). Like No. 1515, except that the neck has a scalloped band with birds' heads.

1576. (41618). Large diamonds on the body alternately with rosettes, by the side of which is a bird.

1577. (41621.) Similar to Fig. 514, except that the black has no circle in it.

1578. (41358). Small with a broad checkered band around the body.

1579. (41605). With narrow scalloped band around the neck; triangular figures pointing to right and left on the body with cross lines between the bases.

1580. (41608). Outline figures of terraced hills with cactus growing from them, and curved scalloped lines above.

1581. (41612). Scalloped band around the neck; oblique, heavy, double diamond figures with scrolls on the body.

1582. (41617). No decorations on the neck; body with the spear points or long triangles, and serrate oblique lines as on Zuñi bowls.

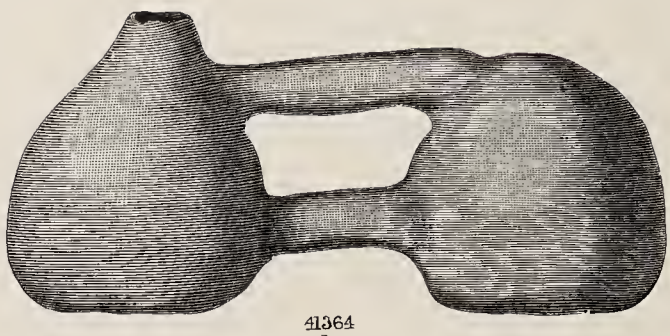
1583. (41616). Line of little circles on the neck; triangles of lines, pointing to the left on the body.

1584. (41619). Similar in form and decorations to Fig. 371 (Zuñi), except that the upper side of the band is formed of triangles instead of scrolls.

1585. (41629). This is really a double-handled jar.

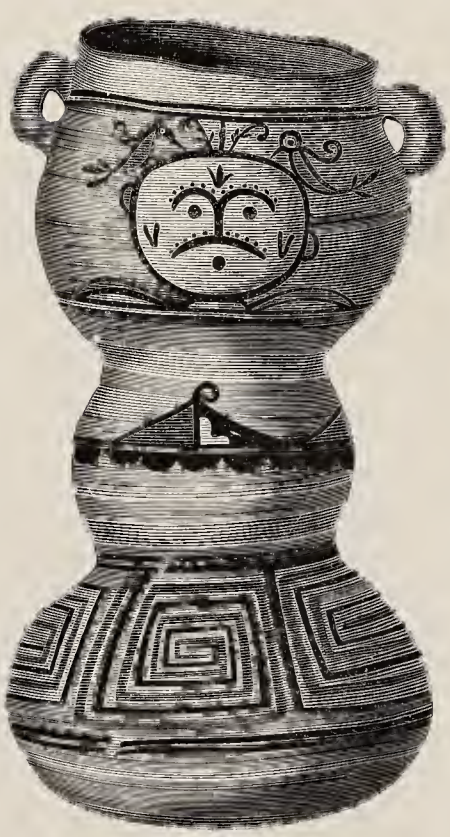
1586. (41630). Scalloped band around bottom, serrated squares near rim.

Fig. 517



41364
1/4

Fig. 518



41363
1/3

Fig. 519

41366
1/3

Figs. 517–519.—Wolpi Vessels.

1587. (41631). Scrolls on the neck; birds with crest feathers, and flowers on the body.
1588. (41634). Very small, with numerous scalloped lines arranged in diamond form.
1589. (41644). Series of double perpendicular scallops.
1590. (41468). Similar to No. 1586.

TOY-LIKE WATER VESSELS.

The following are very small water vessels, probably intended for children:

1591. (41449). Figures of birds on body.
1592. (41450). The usual diamond and scroll on body.
1593–1603. 1593, (41346); 1594, (41347); 1595, (41348); 1596, (41349); 1597, (41350); 1598, (41351); 1599, (41352); 1600, (41353); 1601, (41354); 1602, (41355); 1603, 41448).

Small toy canteens:

1604–1607. 1604, (41439); 1605, (41440); 1606, (41442); 1607, (41443).

The following three are cup-shaped, with an ear on each side to which to attach a string, the top is closed, with a round orifice in the middle, and they are either medicine or little paint vessels and not canteens, as given in the original field catalogue:

1608–1610. 1608, (41444); 1609, (41445); 1610, (41446).

Water jugs and bottles are of various forms, which will be described under their respective numbers. They are usually of the white decorated ware. The brown ware is always undecorated.

1611. (41353). See Fig. 518.
1612. (41364). Brown ware shown in Fig. 517.
1613. (41365). Brown ware, cylindrical, constricted in the middle and with small orifice.
1614. (41393). Without handle.
1615. (41366). Fig. 519. A water jar made in imitation of a common gourd cultivated by many of the Pueblo tribes. The body is ornamented on both sides with a curved line and birds, as seen in the figure. A small circular orifice is left at the base of the handle.
1616. (41367). As in Fig. 520.
1617. (41368). Shown in Fig. 522.
1618–1619. 1618, (41369), and 1619, (41370). Similar to the preceding.
1620. (41407). Regularly shaped jug with handle decorated with geometrical figures.
1621. (41433). Brown ware, regular jug with two handles.
1622. (41434). Similar to preceding, but without handles.
1623. (41469). Bottle shaped. Brown ware. Represented in Fig. 521.

The following are similar:

1624–1628. 1624, (41373); 1625, (41374); 1626, (41375); 1627, (41376); 1630, (41377).

1629. (41393). Brown ware, with single constriction, without handle.
1630. (41394). Similar.

CUPS.

Those obtained were chiefly very small. As will be seen, the ladle to a very large extent supplies with this people the place of the cup.

1631. (41409). Regular handled cup; white ware, with a broad band in which are white crescents.
1632. (41461). Shaped as preceding. White ware, all except a marginal uncolored band marked with cross or checkered lines.
1633. (41526). Small white ware, outside without decorations; scalloped marginal band inside; with handle.
1634. (41527). Sides straight; with handle, decorated on the outside with triangular figures so common on bowls.
1635. (41430). With similar decorations.

Toy cups. Usually brown ware without ornamentation:

1636. (41415). White ware with a band of scrolls.
1637–1641. 1637, (41417); 1638, (41426); 1639, (41427); 1640, (41428); 1641, (41429). These five are brown ware.
1642. (41435). A pretty pitcher-shaped vessel ornamented with interlaced or cross lines forming a regular net-work.

EATING BOWLS.

The bowls vary in size, as do those from Zuñi, but as a general rule they are small, or of but medium size; quite a number of those obtained are very small. In form they are generally like those from Zuñi, but some are biscuit-shaped, as those from Tesuke; others are true basins; and a few are square, and perhaps should not be classed as bowls, though we have included them under that general term. The decorations on the larger ones of regular form are very similar to those seen on Zuñi bowls. The colors black and red or brown are usually lighter and brighter than on the Zuñi pottery:

1643. (41357). Regular Form. Decorations on the inner face only; marginal zigzag line, with diamond and scroll below.
1644. (41359). Outer and inner surface decorations as in Fig. 412.
1645. (41361). Decorations only a double-scalloped inner marginal band.
1646. (41400). Very small; a simple inner band.
1647. (41463). Small. This and the following small specimens are decorated on the inside with what appears to be intended for an Indian head, with a tuft of hair.
1648–1653. 1648, (41464); 1649, (41465); 1650, (41467); 1651, (41529); 1652, (41530); 1653, (41534).
1654–1657. 1654, (41538); 1655, (41539); 1656, (41589); 1657, (41565).
1658. (41466). No outer decorations; inner surface with the usual diamond and scroll figure.

Fig. 520

41367
1/3

Fig. 521

41469
1/3

Fig. 522

41368
(1/3)

Figs. 520–522.—Wolpi Water Jars.

1659–1660. 1659, (41528); 1660, (41531).

1661. (41540). Shown in Fig. 523.

1662–1663. 1662, (41541), and 1663, (41599), are marked only with a broad inner marginal band of geometrical figures.

1664. (41532). No outer decorations; inner with diamond and scroll and triangular figures.

The following have the outer surface decorated as in the Zuñi pattern, shown in Figs. 416 and 417. The inner decorations vary slightly.

With crenate or zigzag line on inner margin, and scroll diamond, or scrolls only:

1665–1671. 1665, (41544); 1666, (41547); 1667, (41562); 1668, (41568); 1669, (41576); 1670, (41590); 1671, (41577).

With similar marginal band and pentagonal scrolls and bird:

1672–1673. 1672, (41548), and 1673, (41549).

1674. (41550). With inner marginal band of geometrical figures; no other inner decorations.

1675. (41561). Broad marginal band only.

1676. (41574). Inside with crenate marginal band; geometrical figures below.

1677. (41584). Heavy, scalloped inner band with T-shaped spaces in the scallops. Scrolls below.

1678. (41581). Broad checkered inner band only.

1679. (41592). Similar checkered band with scroll figures below.

1680. (41596). With terraced marginal band, and terraced or pyramidal figures below.

1681. (41627). Marginal band of geometrical figures only.

1682. (41543). Biscuit-shaped. Outside with three rows or bands of large serratures.

1683. (41545). No outer decorations; inner crenate marginal line; scrolls and diamond below. The following are similar:

1684–1697. 1684, (41554); 1685, (41558), marginal band of lance points; 1686, (41564); 1687, (41567); 1688, (41569); 1689, (41573); 1690, (41575); 1691, (41578); 1692, (41579); 1693, (41582); 1694, (41585); 1695, (41588); 1696, (41591), this has also the triangular bird; 1697, (41623).

1698. (41551). No outer decorations; zigzag marginal line; flowers and lines below.

1699. (41552). This has a very pretty design on the outside, a band of diamonds, a little cross in each, and a dotted line above and below. The inner decorations of this and the following consist of a broad band only, of geometrical or architectural figures. Outer decorations various, which alone are mentioned.

1700–1701. 1700, (41553), bird in a wreath; 1701, (51555), lines of crescent.

1702–1703. 1702, (41556), and 1703, (41563). Same as the preceding.
1704. (41570). Similar to the preceding, with scroll band below.
1705. (41572). Triangular figures.
1706. (41597). Scalloped lines arranged in large diamonds, with a flower in the center of the diamond.
1707. (41626). Scrolls and crescents.
1708. (41628). Same as No. 1706.
1709. (41559). Checkered band and scrolls inside, band of crescents outside.
1710. (41566). Inner marginal band as in outer decorations found on Zuñi bowls
1711. (41571). No outer decorations; inner geometrical figures but no band.
1712. (41593). Checkered band, and scrolls inside; broad marginal band with lower side scalloped.
1713. (41594). With no outer figures; radiating simple and serrate lines inside.
1714. (41595). No outer decorations; scalloped or crenate band, and geometrical figures on inner surface.
1715. (41600). No outer decorations; birds and flowers or rosettes.
1716. (41625). No outer decorations; inside with successive scallops, and the conventional bird form between squares, one above the other.
1717–1718. 1717, (41560), and 1718, (41624). Brown ware without ornamentation.

Minute bowls, usually without decoration, but sometimes figured, especially on the outside, with simple outline figures.

1719–1727. 1719, (41418); 1720, (41419); 1721, (41421); 1722, (41422); 1723, (41423); 1724, 41424); 1725, (41457); 1726, (41458) 1727, (41459), with short handle; the decoration in this is true herring-bone pattern.
1728. (41460).

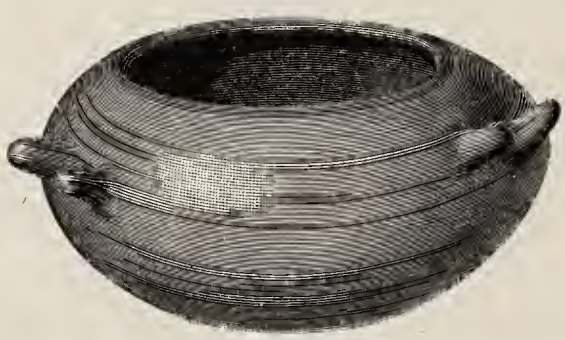
Square basins. These are comparatively small and resemble in shape a common knife-basket or tray, but without handle or division.

1729. (41533). Outside with figures of birds, flowers and diamonds.
1730. (41535). Outer band with scrolls along the under edge or margin; diamond with scroll on inside.
1731. (41537). Inside similar to No. 1730; outside usual triangular figures.
1732. (41536). Outside similar, inside with four faces in outline.
1733. (41542). Plain brown.
1734. (41546). Outside the usual triangular figures; inside bird figures and slender leaf-stalks.
1735. (41557). Outside triangular figures; inside double scroll.
1736. (41586). Outside oblique, double serrate bands; inside broad marginal checkered band; bottom four faces.

FIG. 523

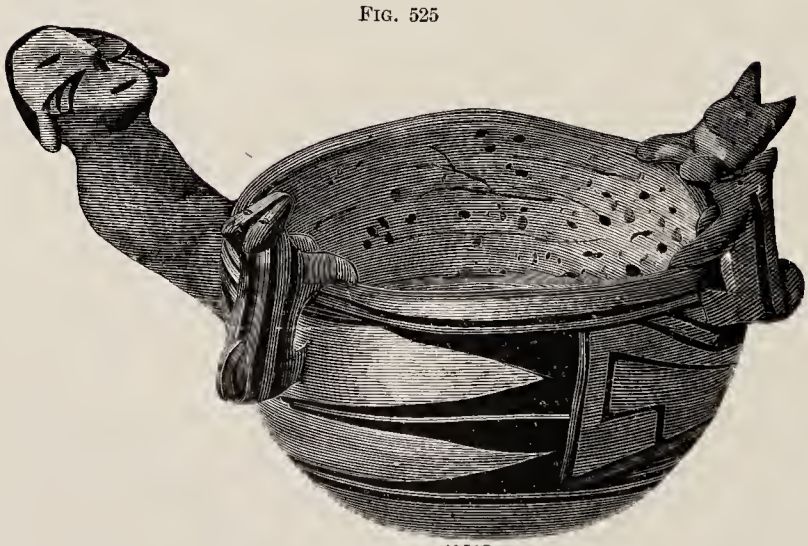
(41540)
1/3

FIG. 524



41385
1/2

FIG. 525



41518
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FIGS. 523–525.—Wolpi Eating Bowl, Cooking Vessel and Ladle.

COOKING VESSELS.

These are usually unadorned and of brown or black ware. The number obtained was not large, and they vary greatly in character. They are generally of medium size or small, and some which appear to be used as cooking vessels have a handle on the side and resemble pitchers and cups. Some have two handles and are shaped like an urn or olla; others appear to be true pots. The want of uniformity among this tribe in the use of vessels of this kind renders its difficult to class them according to use. I will, therefore, group them according to form. Except one or two of the little pots none of them are ornamented.

Pot-shaped vessels:

1737–1739. 1737, (41360); 1738, (41379); 1739, (41385); two handles as in Fig. 524.

1740–1741. 1740, (41380), and 1741, (41405). Without handle, the latter possibly used as a drinking vessel.

1742–1746. 1742, (41381); 1743, (41382); 1744, (41383); 1745, (41384); 1746, (41386); each with a handle on one side; they resemble pitchers or cups.

TOY-LIKE VESSELS.

1747. (41416). Like a small water-vessel.

1748. (41442). Olla-shaped, with handles; decorated with a band of loops around the middle.

1749. (41451). Olla.

1750–1751, 1750, (41452), and 1751, (41453). Cylindrical jars without handles.

1752–1753. 1752, (41293), and 1753, (41294). Large black Cooking pots of the usual shape.

1754. (42367). Flat jar-shaped vessel, red ware, with regular ears on the sides with holes through them. Cooking vessel; new.

1755. (42369). Small globular red bowl, half burned.

1756. (42370). Part of a corrugated vessel. It is yellow, but partly burned; it looks fresh and new, but is really old, having been out of the ground of old ruins near Wolpi.

LADLES.

Of these vessels, which are extensively used by the Shinumos, there are various forms with an almost endless variation in decoration, being generally of ornamented white ware. Some of them bear a strong resemblance to the skillets used on cooking stoves, the handle being looped, but the bowl is more saucer-shaped. Others, as shown in Figs. 527 and 529, are evidently fashioned after gourds. Some are somewhat of the form shown in Figs. 439 and 440, but the handle is more distinct. Others are true cup-shaped vessels, with the handles projecting from the middle of the side. A few are double with a single handle.

Skillet-shaped vessels. Usually decorated in the bowl. As these fig-

ures are generally similar to those already described, special notice will be taken only of such forms as vary from the normal shape and figures.

1757–1758. 1757, (41396), and 1758, (41395). Gourd shaped; similar to those shown in Figs. 527 and 529.

1759–1760. 1759, (41378), and 1760, (41397). Outside covered with checkers.

1761. (41398). Outside covered with scrolls.

1762. (40408). Outside decorated with oblique serrate lines.

1763. (41411). Ladles with two bowls. Handle with the head of an animal, probably a wild-cat, at the tip; figures of birds in the bowls.

1764. (41412). Shown in Fig. 528.

1765. (41413). Handle broken; bowls with only a scalloped marginal band.

1766–1767. 1766, (41470); 1767, (41476). Cup-shaped, with short handles; shaped like a small olla.

1768. (41477). Handle with animal head on the tip; outside covered with checkered figures.

1769. (41479). Handle as in the preceding; oblique, doubly serrate lines on outside of bowl.

1770–1772. 1770, (41480); 1771, (41481); 1772, (41482); face in the bowl of the last.

1773–1774. 1773, (41483), and 1774, (41484); the handle of the latter represents an animal's head, with face turned toward the bowl.

1775–1777. 1775, (41388); 1776, (41389); 1777, (41425). The handle of this represents, in shape, the head of a woman and child, and the bowl contains the figures of two faces.

1778–1783. 1778, (41462); 1779, (41471); 1780, (41472); 1781, (41473); 1782, (41474); 1783, (41475). The last of these has a minute head of a woman on the end of the handle, which is solid.

1784–1785. 1784, (41485), and 1785, (41486). Bowls elaborately ornamented with geometrical figures and a circle of serratures, in which is a figure resembling a duck with spread wings seen from above.

1786–1788. 1786, (41487); 1787, (41488); 1788, (41489); the last with a woman's head on the tip of the solid handle.

1789–1793. 1789, (41498); 1790, (41499); 1791, (41508); 1792, (41514); 1793, (41490). The last of these as also the following seven pieces have bent, gourd-like handles, slightly curved or hooked at the end, solid and somewhat rounded.

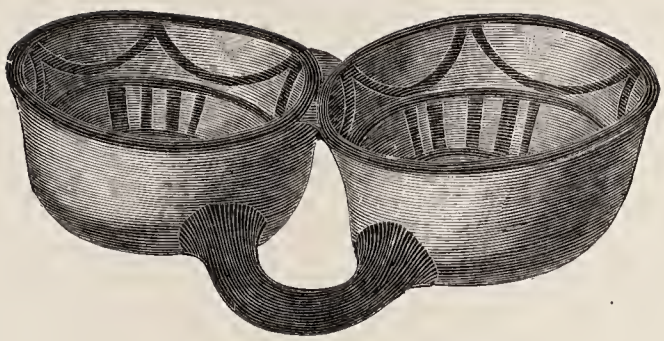
1794–1800. 1794, (41491); 1795, (41492); 1796, (41493); 1797, (41494); 1798, (41496); 1799, (41497); 1800, (41500).

1801. (41495). Like No. 1788, as are also the following ten specimens:

1802–1811. 1802, (41502); 1803, (41504); 1804, (41505); 1805, (41507); 1806, (41515) 1807, (41518), Fig. 525; 1808, (41519); 1809, (41522); 1810, (41523); 1811, (41525).

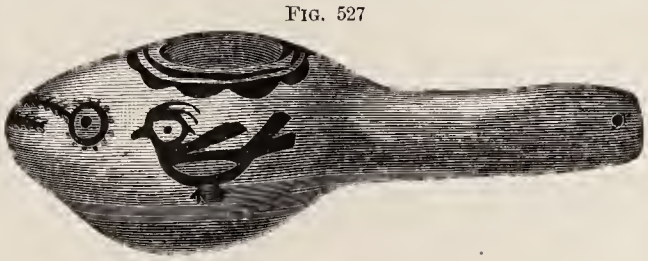
1812. (41506). This is square; an unusual form.

Fig. 526



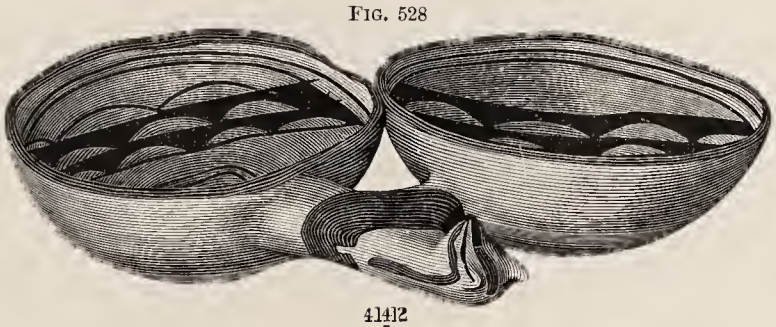
41410
(1/2)

Fig. 527



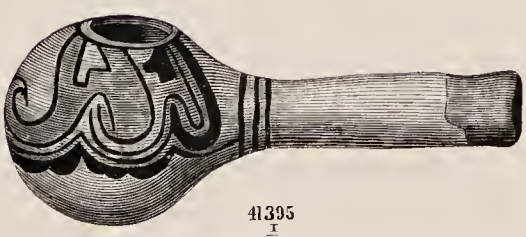
41396
(1/2)

Fig. 528



41412
1/3

Fig. 529



41395
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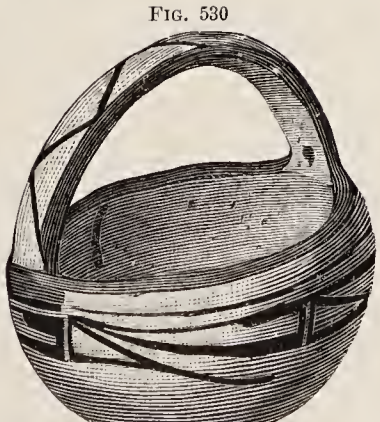
Fig. 530



41392
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Figs. 526–530.—Wolpi Ladles and Basket.

1813–1822. 1813, (41509); 1814, (41510); 1815, (41511); 1816, (41512); 1817, (41513); 1818, (41516); 1819, (41517); 1820, (41520); 1821, (41521); 1822, (41503).

1823–1824. 1823, (41524), and 1824, (41501). Shaped somewhat like an oyster-shell.

1825. (41399). Water vessel in the shape of a bird, with tail and wings represented.

1826. (41406). Cup with bird's head on one side, tail opposite, and slight projections to represent wings on the side. Brown ware.

1827. (41410). A double cup or ladle shown in Fig. 526.

1828. (41414). Like Fig. 531, ornamented with oblique scalloped stripes on outside; geometrical figures inside.

1829–1830. 1829, (41431), and 1830, (41432). Square salt-boxes; the former of white ware, with square figures on the outside; the latter brown, unornamented.

1831. (41436). Cup-shaped basket, brown ware; woman's head on top of handle.

1832. (41437). Similar basket, white ornamented ware, handle plain.

1833. (41437). Similar small, brown, cup-shaped basket.

1834. (41478). Biscuit-shaped bowl, with ornamental diamonds on outside.

MISCELLANEOUS.

1835. (41371). Basket similar to those used by the Zuñians in sacred dances, with terraced margin, plain band inside, and comb-like figures outside.

1836. (41372). Similar basket, bottom flat, and sides straighter than the preceding, decorated on the outside with oblique double-serrate stripes.

1837–1838. 1837, (41387), and 1838, (41392). Baskets with straight margins, both with geometrical figures on the outside. The latter is shown in Fig. 530.

1839. (41390). Fig. 532, water-vase with bowl-shaped base.

1840. (41391). Fig. 531. Basin with looped handle arising from the center of the inside; ornamented white ware.

STATUETTES.

The clay images or statuettes obtained from the Shinumo pueblos are not objects of worship as supposed by many persons, but appear to be used to adorn their dwellings just as similar articles are used by civilized races. This is evident from their form and ornamentation which rudely represent the ordinary clothing worn by these Indians, and in the female figures the usual mode of wearing the hair either in a bunch at the back of the head or in two wheel-shaped knots at the sides. In a few instances ear ornaments, made of pieces of shells or beads, are found attached to the ears.

I am not aware that these images are used in their dances or religious ceremonies. If they are objects of worship it must be in the family only, or a secret worship of which I obtained no information.

Images are introduced, however, in their dances and religious rites, but these are made of wood and highly ornamented, some of which were obtained and are hereafter described.

1841. (42026). Composed of the same clays of which the general pottery is made, with small lines of a brick-red color up and down the body; black lines over the shoulder and around the body, terminating so as to represent hands; small earlets, made of blue beads, suspended from the ears; face in white, with black spots to represent mouth and eyes; horn-shaped cap, extending obliquely back from the head. Represents a male figure.

1842. (42027). Same as above, except the head, which has a square bunch at its back, representing the one method of wearing the hair by the Shinumos. Male figure.

1843. (42028). Same as No. 1841, especially in regard to the horn-shaped protrusion from the back of the head.

1844. (42029). Plain flat image, probably intended to represent a female.

1845. (42030). This image is quite characteristic of this class of objects. The cut shows all but the colors, which are the same as described above, the form only differing from No. 1841 in having two horns curving back from the head. Seen in Fig 533.

1846. (42031). Differs only from the rest in having a small hat on the head.

1847. (42032). Female figure, but with a black band around under the chin, apparently representing whiskers; dark brown body.

1848. (42033). Female figure with wheel-shaped knot on each side of the head representing the manner of wearing the hair by the Shinumo women, the body of the figure cream colored, face red, eyes and mouth black; black necklace. Special parts of the body represented in red.

1849. (42034). Male figure ornamented with red vertical lines.

1850. (42035). Fig. 534. The cut presents all the lines on the image as well as the form. The small wheels on each side of the head referred to under No. 1848 show the style of wearing the hair; the black markings shown on the cut are red on the figure. Female.

1851. (42036). Body red, marked with black and dark red lines; red and black spots on back of head to represent the hair.

1852–1853. 1852, (42037), 1853, (42038); dark red bodies with black and red lines.

1854–1856. 1854, (42039); 1855, (42040); 1856, (42041); similar to the preceding; the last with the wheel-shaped knots representing the hair.

Fig. 531

41391
(1/3)

Fig. 532

41390
1/3

Fig. 533

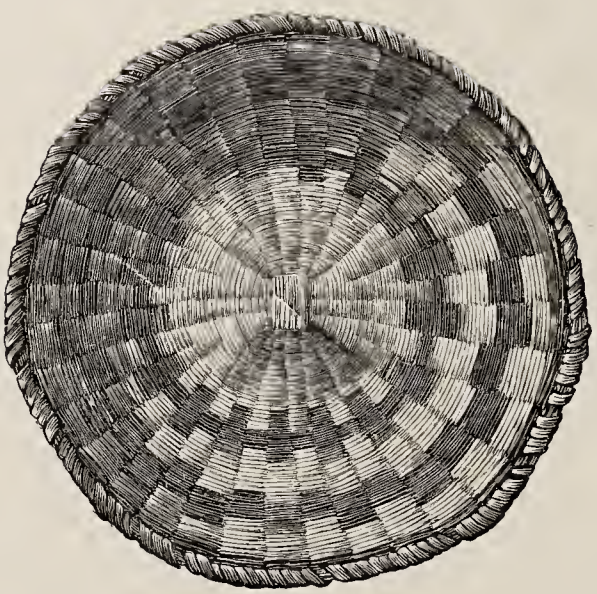
42030
1/2

Fig. 534

42035
1/2

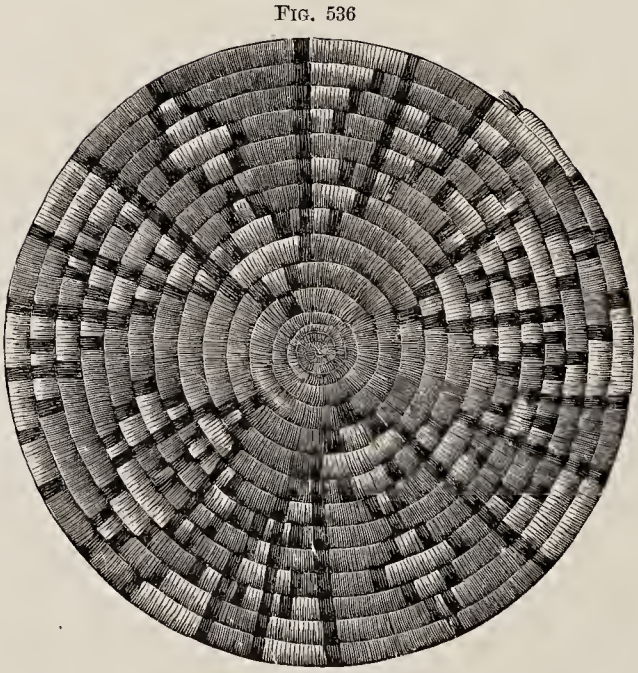
Figs. 531–534.—Wolpi Basin, Vase, and Clay Statuettes.

Fig. 535



42085
(4/4)

Fig. 536



42058
(1/5)

Figs. 535, 536.—Wolpi Meal Baskets.

VEGETAL SUBSTANCES.

BASKETRY.

The following specimens are examples of the tray-like baskets made from round willows:

1857. (42085). Fig. 535 shows the mode of its construction.

1858–1871. 1858, (42076); 1859, (42077); 1860, (42078); 1861, (42079); 1862, (42080); 1863, (42081); 1864, (42082); 1865, (42083); 1866, (42084); 1867, (42086); 1868, (42087); 1869, (42088); 1870, (42089); 1871, (42090).

The following numbers refer to specimens of the spiral or coiled basketry, all the features of which are shown in Fig. 536, except the color decoration:

1872–1907. 1872, (42058); 1873, (42051); 1874, (42052); 1875, (42053); 1876, (42054); 1877, (42055); 1878, (42056); 1879, (42057); 1880, (42059); 1881, (42060); 1882, (42061); 1883, (42062); 1884, (42063); 1885, (42064); 1886, (42065); 1887, (42066); 1888, (42067); 1889, (42068); 1890, (42069); 1891, (42070); 1892, (42071); 1893, (42072); 1894, (42090); 1895, (42073); 1896, (42074); 1897, (42075); 1898, (42091); 1899, (42092); 1900, (42093); 1901, (42094); 1902, (42095); 1903, (42096); 1904, (42097); 1905, (42098); 1906, (42099); 1907, (42100).

The following are canteen or water baskets, previously described as to method of making and using them:

1908–1912. 1908, (42101); 1909, (42102); 1910, (42103); 1911, (42104); 1912, (42105); are vase-shaped baskets, of which Fig. 537 is a representative example.

The following are specimens of the same ware, differing only in form and size:

1913–1920. 1913, (42106); 1914, (42107); 1915, (42108); 1916, (42109); 1917, (42110); 1918, (42111); 1919, (42112); 1920, (42113).

1921–1925. 1921, (42114); 1922, (42115); 1923, (42116); 1924, (42117); 1925, (42118), are only noticeable on account of their peculiar form. They are almost top-shaped, with an acute apex at the bottom. The mouth is small, like that of a jug. In one instance (42114) the body slopes from top and bottom to the center, almost forming a ridge. Very few of this form were obtained.

1926. (42119). A double-lobed canteen basket. Many of the clay water-vessels in the collection are made in imitation of this double-lobed basket.

1927–1931. 1927, (42120); 1928, (42121); 1929, (42122); 1930, (42123); 1931, (42124). Ordinary forms of the water-basket.

1932. (42125). A fine, large, and quite perfect specimen of the jug or water-basket, with ears of horse-hair and string attached for use. Quite a number of the ancient water-jars are of this form, and both bear evidence of antiquity.

1933. (42149). Fig. 538 is a good illustration of this form.

1934–1937. 1934, (42146); 1935, (42147); 1936, (42148); 1937, (42150), are of the same class of cemented basket-ware. The small fruit-baskets, made of round willows and with much less care, are also of many forms. Some are square, others round, and some with a peculiar flattened body; of the latter there are but few in the collection. They belong to the older class of basketry.

The following specimens belong to that class:

1938–1941. 1938, (42126); 1939, (42127); 1940, (42128); 1941, (42129).

1942. (42130). A specimen of a much finer quality than the preceding. It is long and vase-shaped, with a wide mouth and flaring rim, and woven up from the bottom in oblique ridges.

1943. (42131). A coarsely constructed bowl-shaped basket, of which type the following are also specimens:

1944–1951. 1944, (42132); 1945, (42133); 1946, (42134); 1947, (42135); 1948, (42136); 1949, (42137); 1950, (42138); 1951, (42139).

1952. (42140). Specimen of the older basketry, with large depressed body, flat bottom, and jar-like mouth.

1953–1956. 1953, (42141); 1954, (42142), 1955, (42143); 1956, (42144), are also different forms of the peach-basket.

1957. (42145). Fig. 540. A large floor or hearth mat frequently found in use among the Pueblos. The specimen in the collection exhibits some skill and taste in weaving it. The material of which it is made is a small round willow.

1958. (42151). A large deep basket, constructed by weaving coarse willow twigs around four upright posts or large sticks. It has a capacity of about two bushels.

1959. (42152). This is a small square basket of the same character.

1960. (42153). A specimen of this ware. It is shown in Fig. 539, exhibits a coarse, loose manner of construction. These are used as fruit-baskets.

1961–1962. 1961, (42154), and 1962, (42155). These are examples of the same kind.

1963. (42156). This specimen represents the finest quality of baskets in the collection. They are all more or less tastefully ornamented during the process of plaiting them. They are skillfully and closely woven, and are used for holding the finest of their flour and meal. These are undoubtedly of Apache manufacture. Fig. 541.

1964. (42157). Has been selected as an illustration of this class of baskets, of which the following are examples, differing but little in form:

Fig. 537

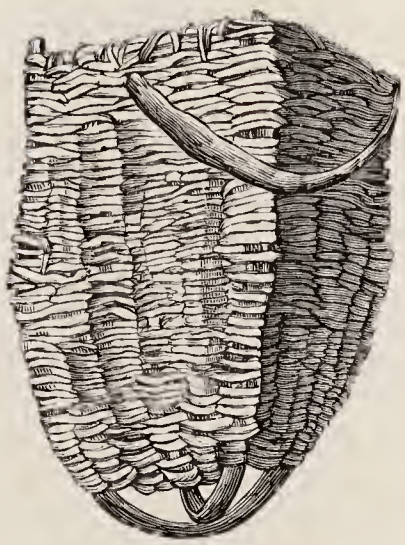
42105
(1/4)

Fig. 538

42129
(1/4)

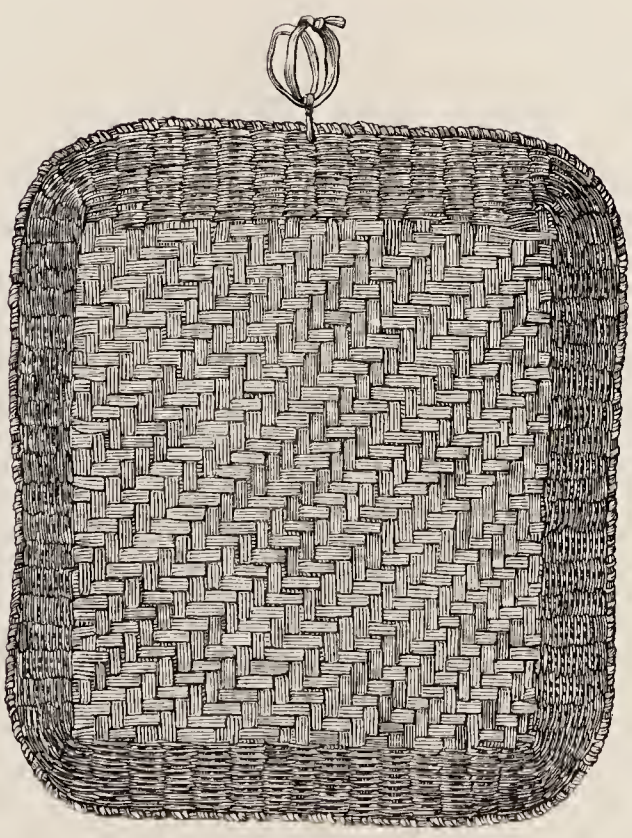
Figs. 537, 538.—Wolpi Baskets.

Fig. 539



42153
(1/3)

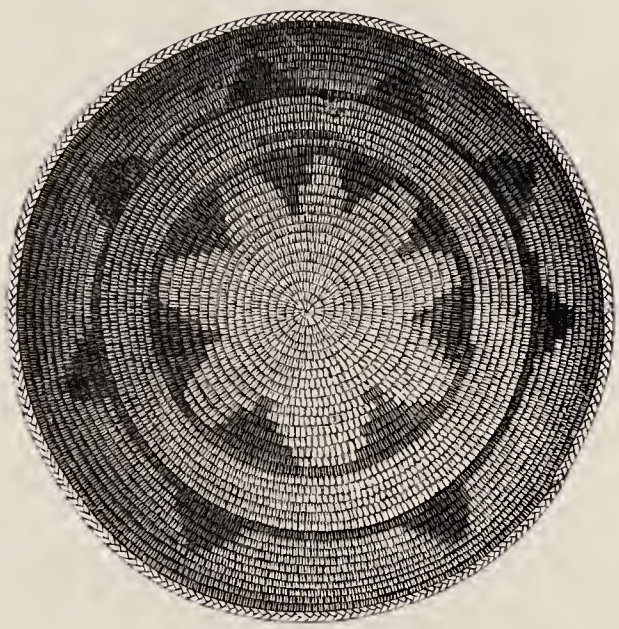
Fig. 540



42145
(1/8)

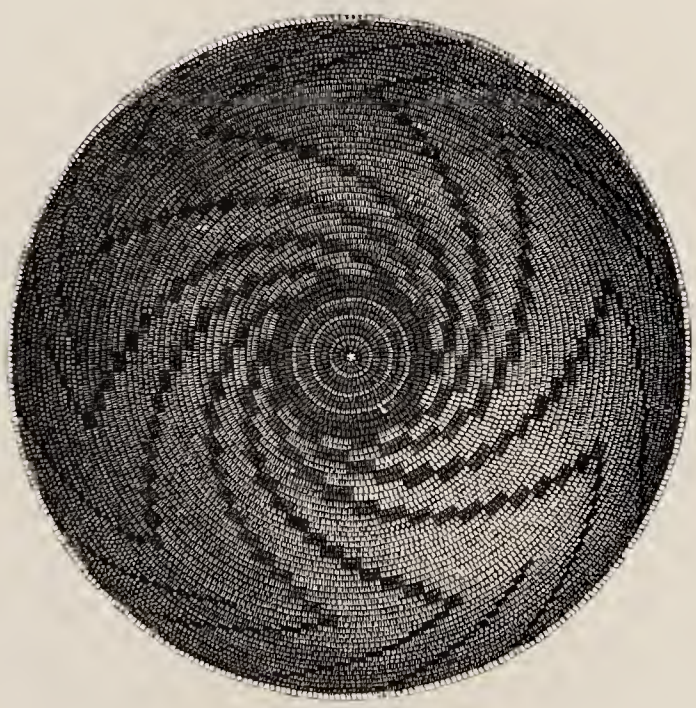
Figs. 539, 540.—Wolpi Fruit Basket and Floor Mat.

Fig. 541



42157
(1/5)

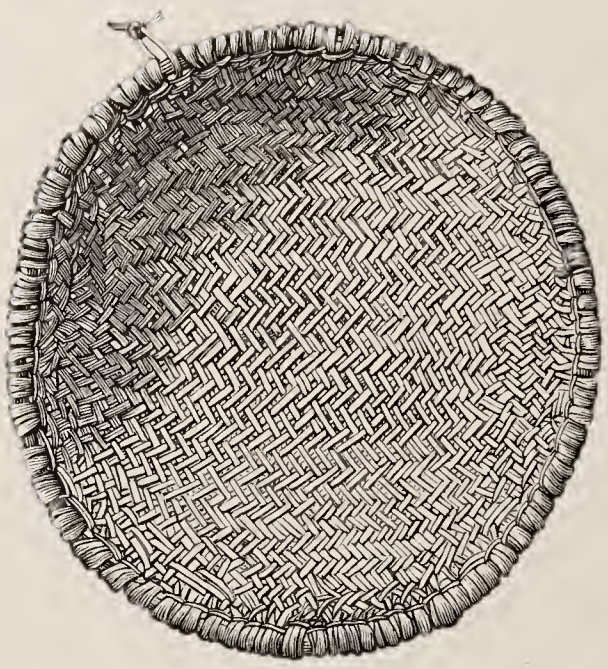
Fig. 542



40160
(1/5)

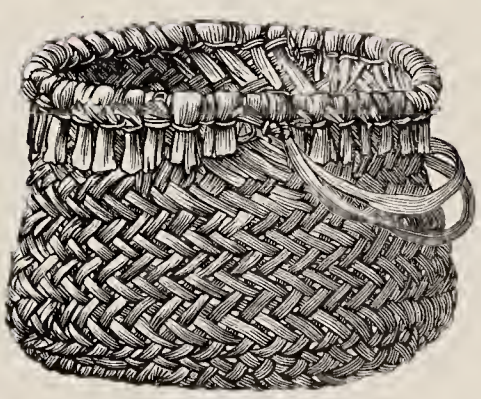
Figs. 541, 542.—Wolpi Baskets

Fig. 543



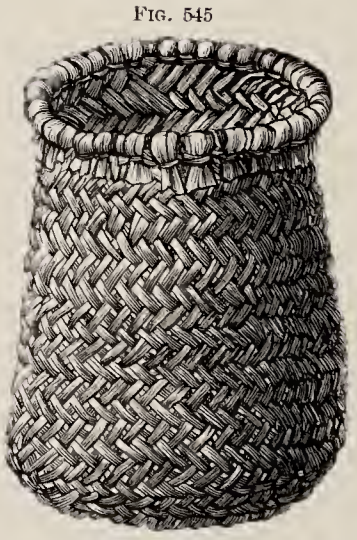
42183
(1/6)

Fig. 544



42199
(1/4)

Fig. 545



42171
(1/3)

Figs. 543–545.—Wolpi Baskets.

1965–1971. 1965, (42158); 1966, (42159); 1967, (42160), Fig. 542; 1968, (42162); 1969, (42163); 1970, (42164); 1971, (42165). The two last are almost flat; the rest saucer or bowl shaped and quite deep.

1972. (42166). Basket of coarse willow ware; platter-shaped.

1973. (42167). Conical-shaped basket of closely woven variety.

1974- (42168). Hemispherical-shaped basket of the same class; small.

1975. (42169). Cylindrical basket; small.

1976–1981. 1976, (42170); 1977, (42171); 1978, (42172); 1979, (42173); 1980, (42174); 1981, (42175). Small cylindrical-shaped peach-baskets made of flat yucca leaves. Fig. 545 is an illustration of that class.

1982–1987. 1982, (42195); 1983, (42196); 1984, (42197); 1985, (42198); 1986, (42199), Fig. 544; 1987, (42200). Examples of the same class.

The following baskets are made from the broad leaves of the yucca, woven or plaited crosswise in a very simple manner, and wrapped at the rims with leaves of the same plant. The texture of the weaving is quite coarse, not sufficiently close to hold any material smaller than corn or fruit:

1988–2006. 1988, (42176); 1989, (42177); 1990, (42178); 1991, (42179); 1992, (42180); 1993, (42181); 1994, (42182); 1995, (42183); 1996, (42184); 1997, (42185); 1998, (42186); 1999, (42187); 2000, (42188); 2001, (42189); 2002, (42190); 2003, (42191); 2004, (42192); 2005, (42193); 2006, (42194), are all specimens of this class well shown in Fig. 543.

DOMESTIC IMPLEMENTS, TOYS, ETC.

2007. (41706). A Shinumo blanket loom, with a blanket partly completed, with all the fixtures and implements employed in the art of blanket weaving. This art, however, attains its highest degree amongst the Navajos.

2008–2009. 2008, (41707), and 2009, (41708), are looms exhibiting different modes of weaving.

2010. (41709). A loom with a partly finished garment.

2011. (41683). Fig. 546. Blanket-stick for tightening strands of blankets during the process of weaving. After the thread is passed through from one side to the other this stick is placed over the thread and then firmly beaten down. The following numbers are implements of the same kind. They are called *soo-qua.*

2012–2020. 2012, (41684); 2013, (41685); 2014, (41686); 2015, (41687); 2016, (41688); 2017, (41689); 2018, (41690); 2019, (41691); 2020, (41692).

2021. (41888). Blanket stretcher, *tu-he-que-hey.*

2022. (41166). Reed frames, used in weaving belts and garters, called *quey-hu-wuk-ta.*

The following are objects of the same kind:

2023–2027. 2023, (41667); 2024, (41668*a*); 2025, (41668*b*); 2026, (41669); 2027, (41670). Implement to show the process of making belts.

2028. (42372). Small notched stick used in weaving belts.

2029–2030. 2029, (41998), and 2030, (41999). Short pointed sticks for stretching and drying skins.

2031. (41676). Spindle whorl, *pa-tu-he-kah.* This is a common object of use amongst all the Pueblos. Fig. 547 is an illustration of one of these implements, showing the shaft with spun yarn below the disk. As previously mentioned, this spindle whorl is almost identical with the drill used for perforating stone and shell charms and ornaments. The addition of a cross stick and strings, with the flint tip, are only necessary to convert it into a drill. In both the drills and whorls the disks are made of horn, stone, bone, and wood. For the drill see Fig. 494.

2032–2037. 2032, (41677); 2033, (41678); 2034, (41679); 2035, (41680); 2036, (41681); 2037, (41682). All spindle whorls.

2038. (41658). Bow and three arrow-shafts.

2039. (41659). Bow.

2040. (41660). Bundle of four arrow-shafts.

2041–2044. 2041, (41661); 2042, (41662); 2043, (41663); 2044, (41664), are bundles of thirty-five arrow-shafts.

2045. (41651). Bow and six iron-pointed arrows.

2046. (41652), (41653). Bows.

2047. (41654). Bow and quiver.

2048. (41655). Quiver and twenty-six iron-pointed arrows.

2049. (41656). Child's bow and two arrows.

2050. (41720). Boy's bow with two arrows.

2051. (41976), Fig. 548. Stick used for hunting rabbits; it is in the form of a boomerang.

2052–2055. 2052, (41977); 2053, (41978); 2054, (41979), Fig. 549; 2055, (41980). Same objects as the last. In the Zuñi tongue this stick is called *kle-ān-ne*, and in Shinumo *pu-wich-he-cu-he.*

2056. (41924). Saddle-tree.

2057. (41925). Stirrups, *pu-tut-hum-pee.*

2058. (41119). Sinch hooks, *cu-rah-bat-tow.*

2059. (42000). Wooden hoe, made in imitation of European hoe.

2060. (41693). Wooden forceps, *wat-cha.*

2061. (41909). Pronged stick for rake, called *ta-wish-wy-lah.* See Fig. 550.

2062–2063. 2062, (41916), and 2063, (41917). Small yoke-shaped implements for drying the skins of small animals by stretching the skin over them.

2064. (41863). Wooden treasure-box, of which the following numbers refer to specimens, and which are well shown in Figs. 552 and 554:

Fig. 546

41683 1/10

Fig. 547

41676 1/7

Fig. 548

41976 (1/5)

Fig. 549

41979 (1/5)

Figs. 546–549.—Wolpi Wooden Implements.

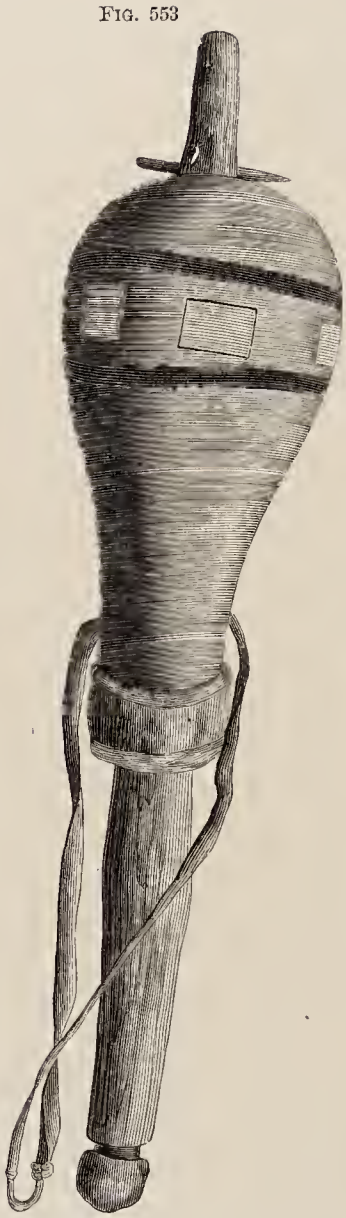
Fig. 550

41909
(1/10)

Fig. 551

41178
1/5

Fig. 553



41191
(1/3)

Fig. 552

41866
1/5

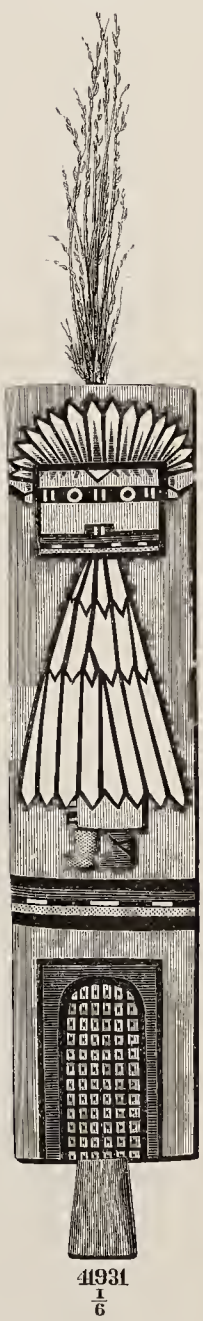
Fig. 554

41865
1/6

Figs. 550–554.—Wolpi Implements

Fig. 556

Fig. 555



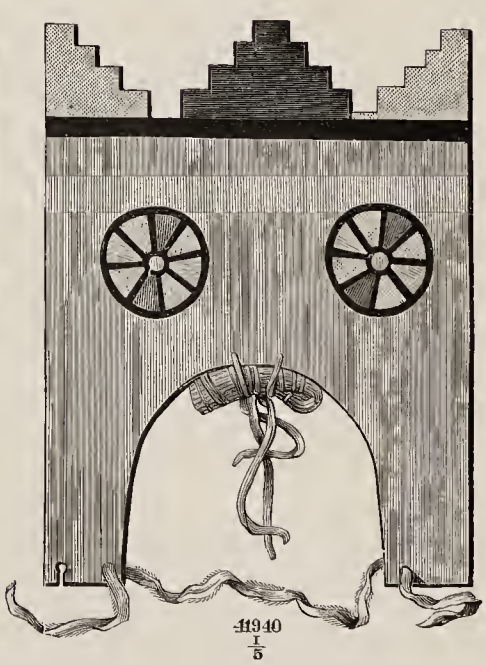
41931
1/6

41926
1/6

Fig. 557

41932
(1/5)

Fig. 558



41940
1/5

Figs. 555–558.—Wolpi Dance Ornaments.

2065–2069. 2065, (41864); 2066, (41865); 2067, (41866); 2068, (41867); 2069, (41868).

2070. (41985). Baby cradle, with hoops over the head for net work; made of slats, *mu-hu-tah.*

2071. (41986). Baby cradle made of willow work.

2072. (41987). Cradle without top.

2073. (41988). Toy cradle, of basket work.

2074. (41989). Toy cradle of boards.

2075. (41710). Toy whirligig, made of a disk with two holes through which strings are passed.

2076. (41711). Specimen of Indian corn.

2077–2078. 2077, (41715), and 2078, (41716).

2079. (41694). Paint toy, of wood, *tat-chi.*

2080. (41695). Bird snares, made of small sticks like the ramrod of a gun, arranged with horse hairs, *wa-wa-shi.*

2081. (42371). Bunch of very small reed-like grass, called *nen-a-wash-pi* or rain broom.

2082–2083. 2082, (41889), and 2083, (41890). Whirling sticks.

2084–2886. 2084, (41177); 2085, (41178); 2086, (41179). Specimens of a peculiar drum-stick in general use by the Shinumo, Zuñi, and other Pueblo Indians. It is made from a stick, one end of which is shaved off sufficiently to admit of bending the end thus shaved round in the form of a hoop, and then tightly securing it. The hoop portion is used in beating the drum. Fig. 551 is an illustration of one of these drum-sticks.

2087. (41180). Calabash, or gourd, for holding food or water.

2088–2090. 2088, (41181); 2089, (41182); 2090, (41183). Ordinary forms of the same vessel.

2091. (41191). Gourd, perforated, with a staff through the center, painted in many colors; held on a pole in dances. See Fig. 553.

ORNAMENTAL OBJECTS.

2092. (41926). Is a flat piece of wood about twenty inches long and five in width, with a notched handle at the lower end. Two bunches of feathers are attached to each edge of it, and a bunch at the top. The form of the ornamentations is shown in Fig. 556; the colors employed in these ornamentations are brilliant red, yellow, blue, and black. The entire design is intended to represent the body of a human being. These objects are carried in the hand in their dances.

2093–2097. 2093, (41927); 2094, (41928); 2095, (41929); 2096, (41930); 2097, (41931). These are other examples which are well represented in Fig. 555.

2098–2100. 2098, (41932), Fig. 557; 2099, (41933); and 2100, (41934), are sticks, carried in the main dance. They represent lightning.

2101–2102. 2101, (41935), and 2102, (41936). Small notched sticks, ornamented with blades of grass and wild-turkey feathers; carried in the dance.

2103–2106. 2103, (41937); 2104, (41938); 2105, (41939); 2006, (41940). Wooden objects highly colored with various devices depicted on them. These are worn on the head in dances. Flowers are represented on some; on others, the human face, &c. Fig. 558, an illustration made from one of them.

2107–2108. 2107, (41941), and 2108, (41942). Small frames, over which canvas is stretched, to the edges of which are attached various small ornaments; used in dances.

2109. (41943). Small hoop with canvas stretched over it, on which are painted five small objects like stars, used in dances.

2110. (41944). Leather dance-mask, painted.

2111. (41945). Dance-mask.

2112. (41946). Pair of split horns worn in dances.

2113. (41947). Head-dress made in the form of scallops.

2114. (41948). Head-dress of painted sheep-horns.

2115. (41949). Head-dress crown made of basket-ware, to which are attached three projections intended for horns, Fig. 559.

2116. (41950). Corn-husk ornament for the dance.

2117–2118. 2117, (41671), and 2118, (41972). Wooden objects made in imitation of a sun-flower, with zigzag or snake-like sticks attached to them, which are used as ornaments in the corn dance, called *pah-wah*.

2119–2120. 2119, (41673), and 2120, (41674). Shuttle-cocks, made by inserting the ends of two hawk-feathers in a small block. They are carried in dances.

2121. (42042). Dance-rattle made from a small gourd, embellished in colors of black, red, and white. The gourd is perforated at each side, through which a stick is passed for a handle, cross S's on each side. See Fig. 562.

2122. (41982). Notched stick, with shoulder blade of sheep or deer, for musical instrument. See Fig. 561.

2123–2124. 2123, (41983), and 2124, (41984). Notched sticks without the bone.

2125. (41701). Dance ornaments, called *tau-ah-qu-la*, made by attaching semi-circular sticks or hoops to a small pole; ornamented with colors.

2126–2129. 2126, (41702); 2127, (41703); 2128, (41704); 2129, (41705), are ornaments of the same character as the preceding.

2130. (41857). Painted gourd-rattle for dances, of which the following numbers are specimens variously ornamented:

2131–2135. 2131, (41858); 2132, (41859); 2133, (41860); 2134, (41861); 2135, (41862), of which the illustration of the latter is an example. See Fig. 560.

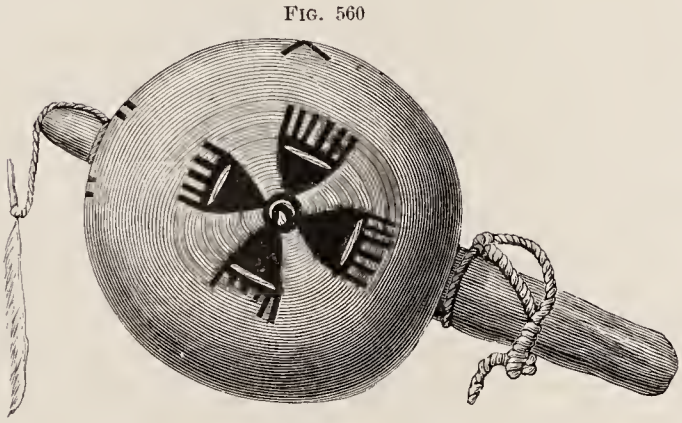
Fig. 559

41949
1/6

Fig. 561

41982
1/6

Fig. 560

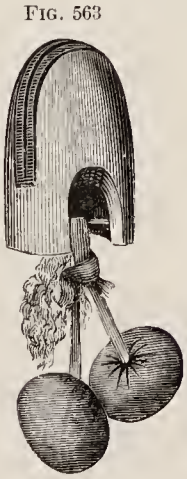


41862
(1/3)

Fig. 562

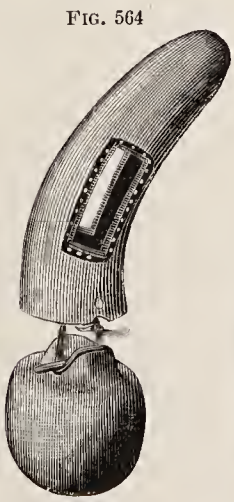
42042
1/2

Fig. 563



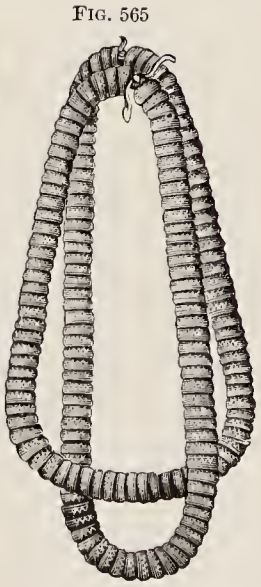
41752
1/4

Fig. 564



41877
1/4

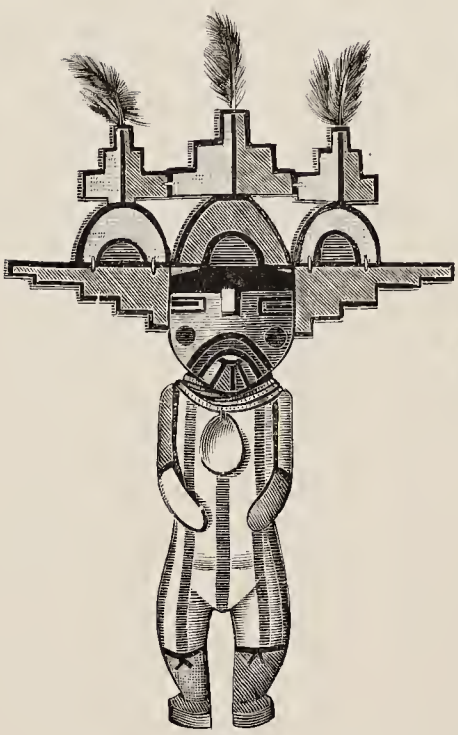
Fig. 565



41922
1/4

Figs. 559–565.—Wolpi Head-dress, Ornaments, &c.

Fig. 566



41959
1/5

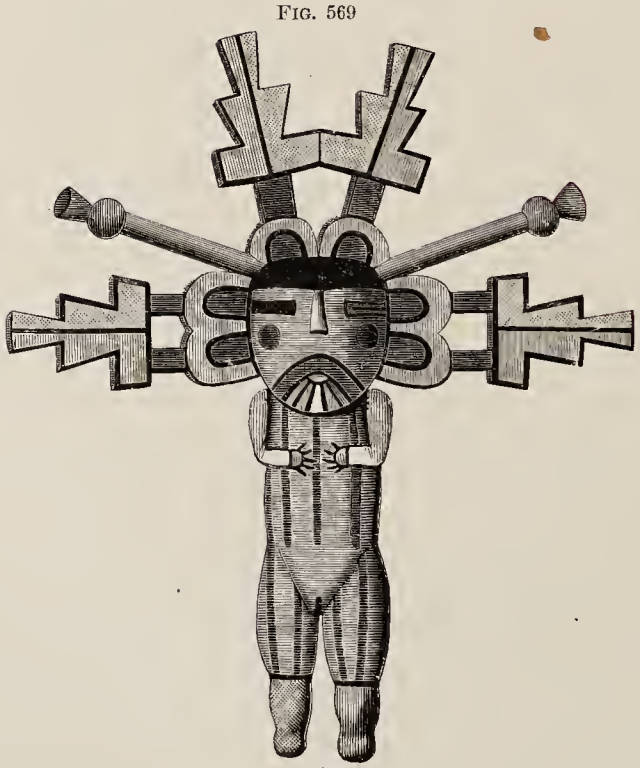
Fig. 567

41953
(1/5)

Fig. 568

41967
1/±

Fig. 569



41956
1/5

Figs. 566–569.—Wolpi Effigies.

2136. (41883). Flat wooden block, painted, for head ornament.
2137. (41884). Cylindrical blocks, with a cup-shaped cavity in one end, used as gaming blocks.
2138–2139. 2138, (41885), and 2139, (41886), are specimens of this block called *sosh-he-wey.*
2140. (41887). Spherical grooved block, painted to represent a melon, used in the melon dance.
2141. (41918). Wooden top, *ree-am-pee.*
2142. (41920). Wooden balls, probably to represent eyes.
2143. (41921). Ball attached to the end of a painted stick, the use of which is not known; probably used in connection with dancing ceremonies.
2144. (41900). Small implement of wood used as a dance ornament.
2145. (41752). Wooden ornament for the head, worn in dancing ceremonies. Two little leather balls are attached to the dotted end; shown in Fig. 563.
2146. (41754). Two small wooden balls with black ends and a white band around the middle; a dance ornament.
2147. (41756). Ornaments for the wrist; made of wooden rings.
2148. (41753). A similar object, painted in various bright colors.
2149–2150. 2149, (41881), and 2150, (41882), are slatted wooden cylinders with conical blocks attached to them. Ornaments for dancing ceremonies.
2151. (41876). Wooden ball attached to slatted gourd-neck, used as an ornament in the dance.
2152. (41877). See Fig. 564.
2153–2154. 2153, (41878), and 2154, (41879). Specimens varying from the preceding only in colors.
2155. (41922). Necklace of acorn hulls, *tuck-we-tah-qua-we.* Fig. 565.
2156. (41923). The same kind of an ornament.

STATUETTES.

These objects vary in form, size, and decoration, the largest being about thirty inches high, the smallest not more than five. They are objects of worship in one form or another. The illustrations in the woodcuts and colored plates will convey a better idea of them than could be given in a description. They are entirely composed of wood, with feathers and other small ornaments attached to them occasionally.

2157. (41951). This is the largest one of these images in the collection, very highly ornamented with bright variegated colors. See Fig. 571.
2158. (41952). One of these objects, differing only in size and manner of decoration.
2159. (41953). This is a specimen of one of these images exhibited in Fig. 567. The form is common to many of them, showing the pyramidal projections attached to the head, with feathered tips.

2160–2161. 2160, (41954), and 2161, (41955). Similar objects.

2162. (41956). Fig. 569. This exhibits a female figure with variegated colors, and in addition to the pyramidal projections from the head has two round sticks with a ball and crown.

2163–2164. 2163, (41957), and 2164, (41958). Similar to Fig. 569.

2165. (41959). Fig. 566. The general characteristics of this specimen are the same as those already referred to, but it differs in the arrangement of the head attachments; two rows of pyramids are shown; the lower one is inverted; the two rows are separated by three arches; the upper pyramids are ornamented at the tips with feathers. A necklace of acorn hulls is around the neck, with a shell ornament attached to it. Garters are represented at the knees. In this specimen, as in many others, the feet are only represented by stubs. The body is decorated to represent fancifully colored clothing.

2166–2168. 2166, (41960); 2167, (41961); 2168, (41962). Similar to the preceding.

2169. (41963). This is well shown in Fig. 570.

2270–2172. 2170, (41964); 2171, (41965); 2172, (41966). Objects of the same character.

2173. (41967). This specimen (Fig. 568) differs considerably in form from those previously mentioned. As will be observed by reference to the figure, it has a conical projection from the top of the head, representing a hat with a feather at the top, with two short, round blocks at the base of the hat, and two round balls to represent ears. The skirt is of cloth. The specimen is brilliantly decorated with paint.

2174. (41968). Shows the form and details of carving, highly colored.

2175. (41969). A brilliantly colored image, which is well shown in colors in Fig. 572.

2176–2180. 2176, (21970); 2177, (41971); 2178, (21972); 2179, (21973); 2180, (41974), are similar objects.

ANIMAL SUBSTANCES.

HORN AND BONE.

2181. (40113). Large ladle from horn of mountain sheep, called *ál-ly-ku*. See Fig. 573.

2182–2188. 2182, (41891); 2183, (41892), 2184, (41893), 2185 (41894), 2186 (41895), 2187 (41897), and 2188 (41898). No. 2182 is a bone awl or perforator, of which the others are examples, as shown in Fig. 575.

2189–2192. 2189, (41990); 2190, (41991); 2191, (41992); 2192, (41193). Goats' horns perforated with small round holes, through which arrow shafts are passed to smooth and straighten them. Fig. 576 is an illustration of one of them, called *hoth-quen*.

FIG. 570 (41963)

FIG. 571 (41951)

FIG. 572 (41969)

JULIUS BIEN, LITH

Figs 570–572 – SHINUMO STATUETTES
¼ NATURE.

Fig. 573

40113
(1/4)

Fig. 574

41855
(1/3)

Fig. 575

41891
1/3

Fig. 576

41992
1/4

Figs. 573–576.—Wolpi Ladle, Rattle, &c.

2193–2196. 2193, (41994); 2194, (41995); 2195, (41996); 2196, (41997). Bundles of arrow shafts.

2197. (41855). Bunch of ox hoofs or toes used as a rattle in dances. These same objects are frequently attached to the edges of turtle shells for the same purpose. See Fig. 574 in Zuñi collection.

2198–2199. 2198, (41763), and 2199, (41764). Small hoops with painted net-work stretched across them; dance ornaments.

2200–2201. 2200, (42346), and 2201, (42347). Shell ornaments, *ya-wag-sha-na.*

2202. (41854). Medicine shells.

SKIN.

2203. (41737). Cap made from the skin of a panther's head, with feathers attached to the top of it, called *pow-how-wi-ta-nah-chi.*

2204. (41738). Head-dress made of the skin of a panther's head, so as to preserve the natural appearance of the animal, with feather ornaments attached.

2205. (41740). Fur cap, ornamented with feathers.

2206. (41743). Boy's sling, *tow-wow-kin-pi.*

2207. (41842). Large rabbit-skin robe, made by twisting strands of rabbit-skins with the fur attached, and then sewing the strands together, *tah-ru-pe.*

2208. (41843). Small robe of the same character.

2209. (42354). Buckskin wrist-guards, faced with metal, Fig. 579. These guards are common with nearly all tribes of Indians, and are designed to protect the wrist from the string of bows used in war and in hunting.

2210. (41869). Women's buckskin leggings.

2211. (41870). Women's buckskin leggings.

2212. (41739). Anklet of buckskin, *pi-la-wak-chi.*

2213. (41741). Anklet of buckskin.

2214. (41828). A pair of men's moccasins, which the accompanying illustration shows well. They are made of buckskin, but differ from the usual manner of making moccasins, called *pow-chi.* See Fig. 578.

2215. (41721). Baby's moccasins, *tow-tow-chi-we-ha.*

2216. (41722). Pair child's moccasins, *tow-tow-chi-we-ha.*

2217. (41723). Woman's moccasins, *tow-chi.*

2218. (41829). Pair of child's moccasins, *pow-tow-chi-u-wez-ha.*

The following are specimens of children's moccasins:

2219–2222. 2219, (41830); 2220, (41831); 2221, (41832); 2222, (41833).

2223. (41755). Small gaming ball covered with goat skin.

2224. (41745). Buckskin paint bag, beaded.

2225. (41746). Buckskin paint bag, beaded.

2226. (41747). Buckskin paint bag, ornamented with fringe.

2227. (41748). Buckskin paint bag, ornamented with fringe.

2228. (41827). Deer-skin pouch, *la-hab-ush-i-wa.*
2229. (41657). Small deer-skin quiver and one arrow.
2230. (41841). Buckskin embroidered with beads.
2231. (41871). Buckskin dyed black.
2232. (41872). Buckskin dyed black.
2233. (41873). Buckskin dyed black.
2234–2235. 2234, (41717), and 2235, (41719), are riding whips made of plaited leather or raw-hide, called *wi-wa-pi.* See Fig. 550.
2236. (41176). A flat drum, made by stretching goat-hide over a wide hoop, and tightened by lacing crosswise around the edge with a cord of the same hide. One side is plain, the other is decorated with a figure, which is not interpreted. This specimen is from Shinumo, but it does not differ from those used by many of the other Pueblo tribes. Fig. 581.
2237. (42351). Fig. 577. Leather wristlets, ornamented with wild turkey feathers.
2238–2239. 2238, (42352), and 2239, (42353), are objects of the same kind, differing somewhat in ornamentation.
2240. (42354). Ornamental wristlets with metal facing.
2241. (42355). Buckskin wrist-guard, to protect the wrist from the bow-string when shooting arrows.
2242–2243. 2242, (42356), and 2243, (42357), are similar objects, made of leather.
2244. (42358). Anklets of leather or rawhide strips.
2245. (42359). Anklets.
2246–2247. 2246, (41749), and 2247, (41750). Leather bags for fire stones.
2248. (41850). Leather attachments for moccasins.
2249. (41765). Leather gaming ball, *tat-chi.*
2250. (41758). Leather or rawhide lash rope with rings, called *pe-qui-sha.*
2251. (41874). Specimen of undressed rawhide.
2252. (41875). Rawhide bag, painted, *cah-he-ne-si-vah.*
2253. (41844). Narrow strip of canvas, painted to represent some fanciful feature.

The following are specimens of the same:

2254–2258. 2254, (41845); 2255, (41846); 2256, (41847); 2257, (41848); 2258, (41849).

WOVEN FABRICS.

2259. (41834). Woven belts or sashes, of which the following are examples, and which are well shown in colors by Figs. 582 and 583:
2260–2269. 2260, (41713); 2261, (41803); 2262, (41255); 2263, (41823); 2264, (41835); 2265, (41836); 2266, (41837); 2267, (41838); 2268, (41839); 2269, (41840).
2270. (41718). Woven waist belt, ornamented with sheep and goats' toes, attached to the lower edge of the belt.
2271. (41751). Head ornament of braided hair.

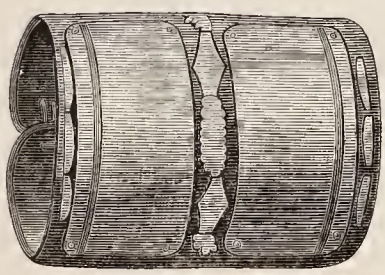
Fig. 577

42351

Fig. 578

41828
(1/5)

Fig. 579

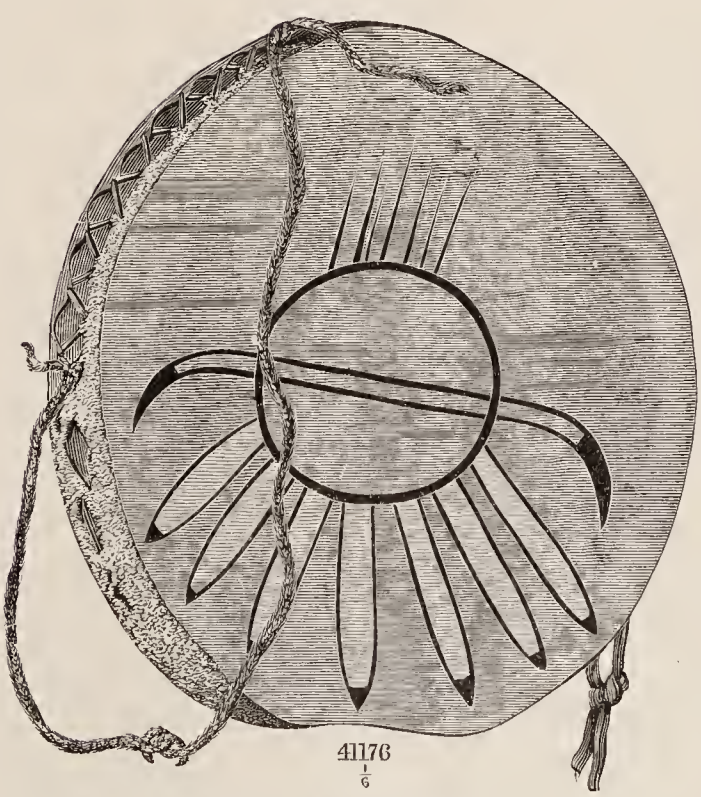


42354
(4/3)

Fig. 580

41719
1/5

Fig. 581



41176
1/6

Figs. 577–581.—Wolpi Wristlets, Moccasins, etc.

FIG. 582 (41255)

FIG. 583 (41823)

JULIUS BIEN, LITH.

Figs. 582–583—SHINUMO BLANKETS.
¼ NATURE.

2272. (42361). Flat circular pad, composed of hair, over which the Shinumo women wear their hair, which appears like two wheels over the ears.

2273. (41767). Head ornament for flower dance, called *tah-chi.*

2274. (41769). Ornament similar to the preceding.

2275. (41766). Maiden's hair strings for head-dress, called *chi-ca-ha-pi.*

2276. (41735). Rosette for head-dress in dance.

2277. (41736) Rosette with hair tufts attached; dance ornament for the head.

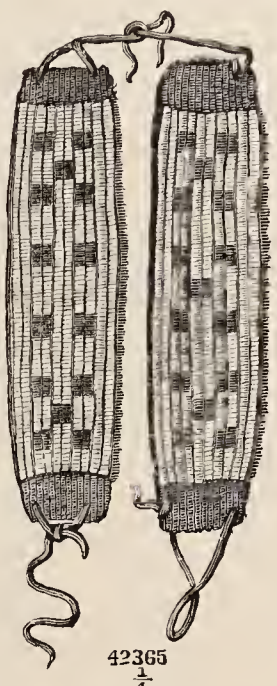
2278. (41744). Woolen tassel, ornament for dress.

2279. (41762). Neck ornament, with feathers attached, called *how-wah-he-qua-wi.*

2280. (41759). Feather charms.

2281. (41761). Woven band for the head, called *mong-at-a.*

2282. (42365). Fig. 584. Anklets, ornamented with porcupine quills; some are beaded.


42365 1/4
FIG. 584.

The following are specimens of the anklets, variously ornamented:

2283–2286. 2283, (42362); 2284, (42363); 2285, (42364); 2286, (42366).

2287. (41742). Woman's knit leggings.

2288. (41826). Woven hair sinch or saddle-girt, *ah-chis-clah.*

2289. (41757). Braided lasso or lariat.

COLLECTIONS FROM LAGUNA.

ARTICLES OF CLAY.

WATER VASES.

These are mostly of the usual form, though some should, probably on account of their shape, be designated as jars. A few have the margin undulate, and some are without any distinct neck.

They are generally well made and very symmetrical, of white ware, with decorations in black, brown, or red colors.

2290. (41295). Small, with opposite handles or ears, resembling rats peeping into the vessel; body decorated with broad oblique stripes and figures resembling corn blades. Shown in Fig. 585.

2291. (42382). Small, decorated with birds fighting, their feathers ruffled. Fig. 612.

2292. (42384). Small, with a single broad undulate band around the body, having a white stripe in the middle marked with a row of dots.

2293. (42385). Fig. 586. Scalloped and straight band around the neck; body with two interlaced undulate bands, with triangles alternately in the inclosed and upper spaces.

2294. (42380). Red base, upright black bands in the center, with brown band below neck, and oblique bars extending from rim downward. See Fig. 610.

2295. (42381*a*). Fig. 587. The leaves in the decorations of this piece are probably designed to represent corn blades. There is something about the figures here used which leads one to believe they are, in part, at least, symbolical.

2296. (42386). Fig. 588. Large. Large flower ornaments surrounding large birds with crests and ruffled feathers, one in each space. The large-billed bird may be intended for a raven; the other the California quail.

2297. (42387). Small margin, with images of three birds with spread wings on it; figures of two birds, with a few small flowers covering the body. See Fig. 611.

2298. (42388). Small. Zigzag band around the neck; figures on the body as in Fig. 585.

2299. (42389). Jar-shaped; zigzag band extending on neck and shoulder; a straight and scalloped band just below the shoulder.

2300. (42390). No neck, broadest near the top; birds, and flowers with stem. Small.

2301. (41391). Without neck; birds only, small.

2302. (42392). Without neck. Birds picking grass. Small flowers.

2303. (42393). Scalloped margin; birds only, small.

2304. (42394), Fig. 589. Scalloped margin. Deer, which seems to be biting the leaves of a plant.

2305. (42395). Fig. 590.

2306. (42396). Jug-shaped, scalloped margin, with four bands of crescents on the body.

2307. (42397). Jug-shaped, with square mouth; zigzag line around the neck. Scrolls and oblique diamond figures on the body; small.

2308. (42398). Fig. 591. Ears in the form of animals peeping into the vessel.

2309. (42399). Small, with crude images of animals on the margin; birds alone on the body.

2310. (42400). Small; no neck, square mouth; image of a rabbit at each corner on the rim; birds and checkered square on the body.

2311. (42401). Small and similar to preceding, except that there are only corn leaves and a little square on the body.

2312. (41402). Similar in form to the preceding; image of an animal at one corner only; zigzag line around the neck; double undulate line around the body, with dots above and below.

2313. (41403). Similar to No. 2310, except that it is more slender and jar-shaped; image of a dog or coyote at each corner; figure of a ladle and a diamond on the body.

Fig. 585

41295
(1/3)

Fig. 586

42385
(1/3)

Fig. 587

42381
(1/4)

Figs. 585–587.—Laguna Water Vases.

FIG. 588

42386
(1/4)

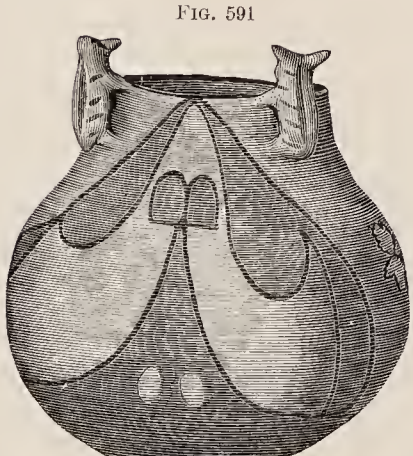
FIG. 589

42394
(1/3)

FIG. 590

42395
1/3

FIG. 591



42398
1/3

FIG. 592

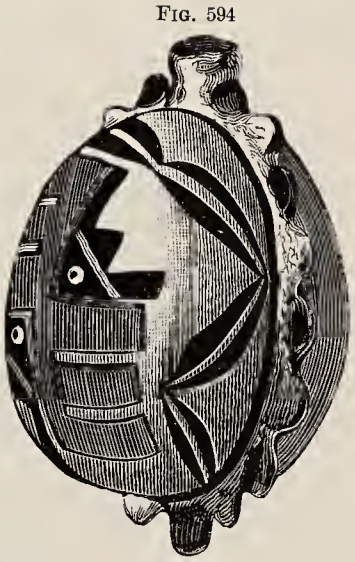
41298
(1/5)

FIGS. 588–592.—Laguna Water Vessels.

Fig. 593

41299
(1/2)

Fig. 594



42412
(1/3)

Fig. 595

42413
(1/3)

Fig. 596

42409
(1/3)

Figs. 593–596.—Laguna Water Jars.

2314. (41404). Jar-shaped, with a round mouth, one animal on the margin; triangular lines on the body.

2315. (42406). Regular shaped olla of medium size; large figure of leaf twigs arranged in the form of a Maltese cross, surrounded on the side by broad curved lines or stripes.

The following are but slightly decorated:

2316–2317. 2316, (42376), and 2317, (42378). With one or two simple narrow bands or lines.

2318. (42780). With slight oblique lines on the neck, and a few broad upright lines in two groups on the body.

2319–2320. 2319, (42379), and 2320, (42381*b*). Without decorations of any kind.

WATER JUGS AND JARS.

2321. (41299). Fig. 593. Canteen with the images of four dogs or coyotes on it. Leaf decorations.

2322. (41300). Canteens, regular form. Irregular figures.

2323. (42412). Fig. 594. Canteen of regular form, scalloped band, leaves and geometrical figures.

2324. (42413). Fig. 595. Olla-shaped canteen. The top is depressed and ornamented with a scalloped band; immediately below this is a broad band consisting of two plain, narrow stripes, between which is a row of oblong figures arranged in a zigzag pattern; around the middle of the vessel there is a sparsely serrate band, interrupted at intervals by small circles, in each of which there is the form of a cross.

2325. (42409). Fig. 596. The ornamentation on this piece is rather peculiar and worthy of attention, especially the bands around the columns.

2326. (42411). Double pepper and salt box, square form, with two handles side by side; birds mounted on the handles; figures of elk on the sides and ends in procession.

2327. (42475). Moccasin; rude.

PITCHERS.

These are well formed, evidently in imitation of those introduced by the white population. All similar in form, with handles. White ware with decorations; of medium size.

2328. (41298). Shown in Fig. 592.

2329. (42405). Diamond scroll in the upper zone; a band of triangles with points directed upward in lower zone.

2330. (42406). Flower or rosette in upper zone, one on each side; no other figures.

2331. (42407). Broad band around the neck, from which two long-pointed triangles or acuminate figures point downwards; then another simple straight band, and below this a zigzag band.

2332. (42408). Scroll band around the neck; a band of hour-glass figures around the shoulder.

2333. (42410). With an undulate band around the bowl.

EFFIGIES.

These are of white decorated ware, and in the form of birds and quadrupeds; the orifice being usually in the top of the head, but in birds it is occasionally at the tail, and in the quadruped forms sometimes in the breast.

Birds.

These are frequently without feet, &c.; one or two double ones are on pedestals.

2334–2347. 2334, (41301); 2335, (41302), Fig. 597; 2336, (41303), Fig. 598; 2337, (41304); 2338, (41305); 2339, (42414), Fig. 608; 2340, (42415), Fig. 599; 2341, (42418), Fig. 609; 2342, (42419); 2343, (42423); 2344, (42426); 2345, (42427); 2346, (42428); 2347, (42429), are all similar to that represented in the Figures; some of them are intended to represent other birds than ducks.

2348. (42417). Fig. 600. With two heads on a pedestal.

2349. (42420). Two heads, but not on a pedestal; a handle on the back in the form of a fox or dog. See Fig. 605.

2350–2352. 2350, (42421); 2351, (42422); 2352, (42424). Similar to those shown in Fig. 598, but the decorations are scrolls and triangular figures. The first has a flower or rosette on the breast.

2353. (42425). Two-headed; not on pedestal; lines, triangles, &c.

2354. (42435). With a crest and long tail; apparently a rooster.

Quadrupeds.

2355. (41306). Fig. 601. This represents a sheep. The orifice is in front of the head.

2356–2357. 2356, (41307), Fig. 609, and 2357, (41309). These are probably intended for sheep, but they are so rude that it is not possible to determine with any certainty. Bark colored.

2358. (41308). A cow; although rude, the characteristics are well given, even to the hoofs and udder; spotted on the back and breast. Coloring on the sides intended to represent hair.

2359. (42430). Shown on Fig. 606.

2360. (42431). Fig. 602. This and the preceding figure are evidently intended to represent rabbits.

2361–2362. 2361, (42432), and 2362, (42433). Similar to the last; apparently intended for a figure of the ass (*Burro*), though the spots on the former are inappropriate. The latter is decorated on the side with the figure of another quadruped.

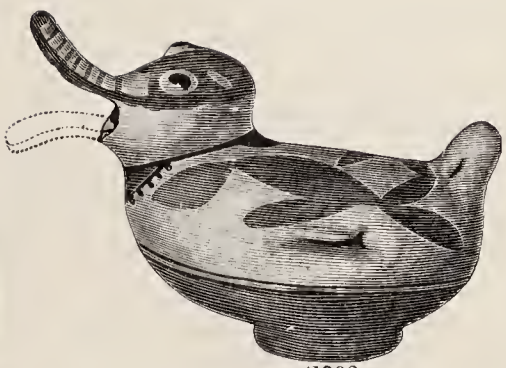
2363. (42434). Animal unknown.

2364–2365. 2364, (42436), and 2365, (42437). Animal not determinable; decorated with spots.

Fig. 597

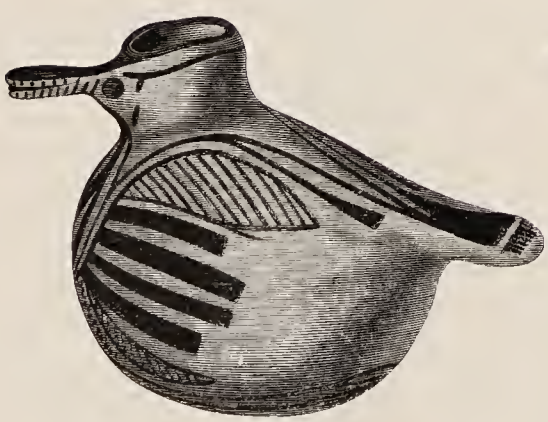
41302
(1/3)

Fig. 598



41303
(1/3)

Fig. 599



42415
(1/2)

Fig. 600

42417
(1/3)

Figs. 597–600.—Laguna Effigies.

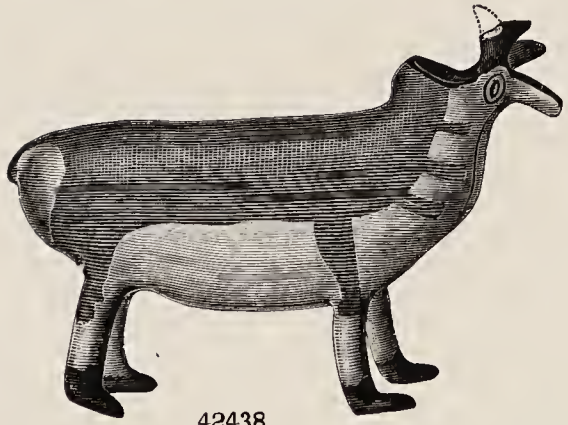
Fig. 601

41306
(1/3)

Fig. 602

42431
(1/3)

Fig. 603



42438
(1/3)

Fig. 604

42444
(1/3)

Figs. 601-604.—Laguna Effigies.

FIG. 605 (42420)

FIG. 606 (42430)

FIG. 607 (41307)

FIG 608 (42414)

FIG. 609 (42418)

JULIUS BIEN, LITH

Figs. 605–609—LAGUNA POTTERY.

⅓ NATURE.

FIG. 610 (42380)

FIG. 611 (42387)

FIG. 612 (42382)

FIG. 613 (42473)

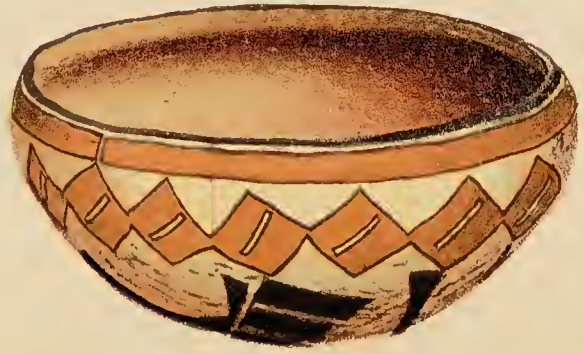


FIG. 614 (42469)

FIG. 615 (42471)

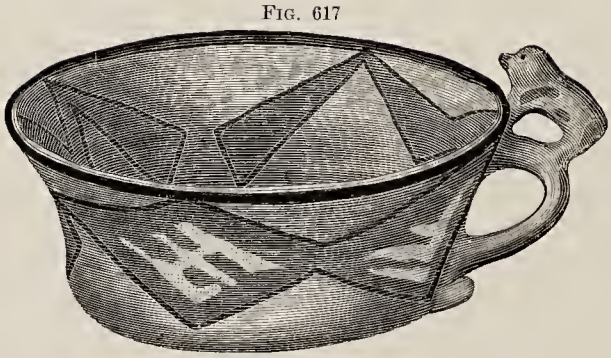
JULIUS BIEN, LITH

Figs. 610—615—LAGUNA POTTERY.
¼ NATURE

Fig. 616

41297
(1/2)

Fig. 617



42452
1/3

Figs. 616, 617.—Laguna Eating Bowls.

2366–2371. 2366, (42438), Fig. 603; 2367, (42439); 2368, (42440); 2369, (42441); 2370, (42442); 2371, (42443). Antelope and elk. The first is evidently an antelope, and possibly the third and fifth. The rest are certainly elk. Decorations simple.

2372. (42444). Probably a dog or coyote, with scrolls and diamond figures. See Fig. 604.

2373. (42445). Probably a horse.

Human figures—dolls.

2374–2377. 2374, (42447); 2375, (42448); 2376, (42449); 2377, (42450). Females; simple.

2378. (42446). Is a pretty fair representation of a chair.

EATING BOWLS.

The Laguna bowls are mostly of two sizes, either large or small. The former are eating bowls and are of the general form, or perhaps more hemispherical than usual. The small ones vary in shape from the preceding form to that of a flat-bottomed basin. The decorations present but little similarity to those we have previously described from other tribes; white ware with colored decorations.

Small bowls. Decorations all external:

2379. (41296). Square mouth, with two sides somewhat flattened. Scrolls and leaf-like figures on the outside.

2380. (41297). Fig. 616. Shown in the figure.

2381. (42451). Basin-shaped, with a handle on one side and a lip on the other; simple marginal and basal band with oblique lines.

2382. (42452). Fig. 617. Same form, with handle on which is seated some animal, apparently a dog, no lip. Band of diamond figures with central spaces. These two are the only specimens which have handles.

The following are quite small, basin-shaped, decorated with leaf-like figures:

2383–2388. 2383, (42453); 2384, (42454); 2385, (42457); 2386, (42458); 2387, (42459); 2388, (42460).

The two following are small, of regular form:

2389. (42455). With two zigzag lines around the body.

2390. (42456). With geometrical figures.

Large bowls.

2391. (41265). No external decorations; radiating lines and large spaces inside.

2392. (42474). Inner zigzag marginal line as on Zuñi bowls; outer decorations also somewhat like the usual triangular figures on the Zuñi bowls.

The following are without inner decorations:

2393–2395. 2393, (42466); 2394, (42468); 2395; (42472). With broad band of geometrical figures; the first with a narrow scalloped band bordering the large band below.

2396–2397. 2396, (42467), and 2397, (42473). With irregular geometrical figures; no band.

2398. (42469). With diamond marginal band; irregular figures below. Fig. 614.

2399. (42470). The large circular scroll with irregular figures; no band.

2400. (42473). Scalloped circle with a square in it, and leaf-like figures. Fig. 615.

COLLECTIONS FROM ACOMA.

ARTICLES OF CLAY.

WATER VASES.

There are but few pieces of this pottery, yet a careful examination of these since my return increases my desire to procure more. The Acoma bears a strong resemblance, especially in the ornamentation, to that from Laguna. All that was obtained was of white ware with decorations in color. In this pottery, in most cases where animals are figured, they have a base or ground on which to stand.

2401. (39578). Medium size, figures of birds, ant-hills, and cactus. No band on the neck.

2402. (39581). Fig. 618.

2403. (39582). Very pretty specimen, quite symmetrical, broad jar-shaped, a scalloped band on the neck with little tassels suspended from it, possibly intended to imitate fringe. Large triangles on the body pointing to the right, each tipped with a flower.

2404. (39730). Small scalloped band around the neck similar to Fig. 624.

2405. (41310). Large double band of triangles on the neck; body with a band of large diamonds, or squares placed as diamonds, with checkered centers and crescents.

2406. (41313). No band on the neck; birds and ant hills.

2407. (41314). No band on neck; large elk and some irregular figures.

2408. (41315). No band on neck; bird on the ground amid leaves and flowers.

2409. (41316). Fig. 619. The ornamentation on this is more than usually spirited.

2410. (41318). Scalloped margin, no neck-band; belt of large open diamonds around the body, each upper corner capped with three leaves. See Fig. 621.

2411. (41317). Large size; a double band of crescents around the neck; then on the shoulder an arched band with a central stripe of diamonds; below this a double line of inverted crescents, and below this a large three-leafed plant. See Fig. 620.

Fig. 618

39581
(1/4)

Fig. 619

41316
(1/4)

Figs. 618, 619.—Acoma Water Vases.

Figs. 620–622 — ACOMA POTTERY
⅕ NATURE

2412. (42378). Plain.
2413. (42383). Small, with lines of outline cresents around the body.
2414. (42317). See Fig. 622.

PITCHERS.

White decorated ware with handles:

2415. (41311). Regular form, of medium size, with a broad zigzag band around the neck and another around the body. The latter has in each large fold something like an arrow-head with point broken off.
2416. (41312). Olla-shaped neck with short oblique bands; body with large and small triangles.

EATING BOWLS.

The following specimens are small:

2417. (42461). Shaped exactly like the small soup bowl in use at the present day among the whites; with foot encircled by a vine with well-formed leaves. A pretty piece.
2418. (42462). Regular form, with an outline zigzag band.
2419. (42463) and (42464). Very small, conical in shape, the former marked with slender lines running around it, the latter with dots.

COLLECTION FROM COCHITI.

ARTICLES OF CLAY.

WATER VESSELS.

Size: height 6 to 9 inches, diameter 6 to 15 inches.

These are of the same form as those of Zuñi, but the curves and outlines are much more graceful, and there is a delicacy in the finish which places them above the Zuñi pottery and indicates a greater freedom and confidence in the ceramic artist. The rim is often slightly flared, the neck more distinct and regularly formed.

The only figure given of this interesting group is not one of the regularly formed specimens. They are all white ware with decorations in black.

2420. (39501). Scalloped band around the neck; body divided into three compartments by upright double lines with rosette in one and twigs in the others.
2421. (39502). Pueblo or terraced figures around the body bordered by an undulate line below. This is of special interest.
2422. (39503). Decorated with sunflower, the stem and leaves on the body; straight and undulate lines around the neck.

2423. (39504). Decorated with straight and undulate bands.

2424. (39505). With figures of birds on the neck; and a tolerably well executed true meander or Greek fret around the body. Evident imitation of European pattern.

2425. (39506). Straight and undulate lines on the neck, triangle pointing downwards, leaves and insects on the body.

2426. (39509). Depressed; with rosettes and geometrical figures on the upper half of the body.

2427. (39634). Globular in form, without neck; scalloped marginal band; figures of chickens on the body.

2428. (39731). Fig. 624. Small size.

2429. (39733). Small size, similar in form to the preceding, with scalloped band around the neck, and scalloped arches on the body. Shown in Fig. 623.

Globular vessels with handles, used for holding water. These are of two forms: those which are almost or quite spherical, with wide mouth at the top; and those which resemble tea-pots, and open through a spout in the form of the head of a bird or other animal. These are sometimes globular, with opening at the top. Size shown in the illustrations.

2430. (39557). Undulate band around the margin; figures of fish on the body.

2431. (39558). Undulate line round the margin; figures of deer, bird, and fruit.

2432. (39559). With figures of triangles and leaves on the body.

2433. (39560). With head of a bird projecting from one side; marked with outline triangular and lunar figures on the body.

2434. (39561). Head of an animal projecting from one side.

Canteen-shaped vessels, with openings through a spout in the form of the head of some animal. In some instances, where these are in the form of a bird with the head for a spout, at the opposite end or side is the representation of a tail, but often the latter is wanting. Handle single, and usually on the top, unless otherwise specially mentioned.

2435–2436. 2435, (39563), and 2436, (39567). These are bird-shaped, with simple meander bands round the neck, and procession or herd of sheep or goats on the body. Head and tail shown. The former is seen in Fig. 625.

2437. (39564). Form of a bird without tail; decorations simple.

2438. (39565). Shown in Fig. 626.

2439. (39568). Bird without tail; figure of an Indian with a gun in his hand, leading a calf followed by a cow.

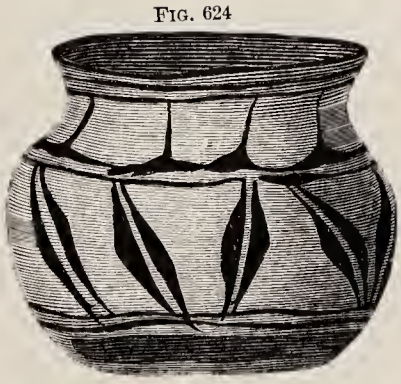
2440. (39569). Bird with rude tail; figures of fishes and bird and a scalloped band below.

2441. (39570). Bird without tail; feather figures on breast; oblique checkered band to represent wing.

FIG. 623

39733
(1/3)

FIG. 624



39731
(1/3)

FIGS. 623, 624.—Cochiti Water Vessels.

FIG. 625

39563
1/3

FIG. 626

39565
1/3

FIGS. 625, 626.—Cochiti Water Vessels.

Fig. 627

39573
$\frac{1}{3}$

Fig. 628

39720
$\left(\frac{1}{3}\right)$

Figs. 627, 628.—Cochiti Water Vessels.

FIG. 629

39725
(1/3)

FIG. 630

39511
1/3

FIGS. 629, 630.—Cochiti Water Vessels.

Fig. 631

39717
($\frac{1}{3}$)

Fig. 632

39721
($\frac{1}{3}$)

Figs. 631, 632.—Cochiti Water Vessels.

FIG. 633

39718
($\frac{1}{3}$)

FIG. 634

39714
($\frac{1}{3}$)

FIGS. 633, 634.—Cochiti Water Vessels.

2442. (39571). With two heads opposite, handle crosswise between them; serrate bands around the necks; figures of birds on the body.

2443. (39572). Representing a double-headed duck, with a single tail at opposite end; square handle; outline flower or rosette on the body.

2444. (39573). Form and decorations shown in Fig. 627. Probably intended for a dog.

2445. (39574). Form like preceding; decorations, fish and grass; latter well shown.

2446. (39575). Similar in form to preceding, but with the fore-legs added. Decorations, collar or band around the neck and fish on the body.

2447. (39579). Without handle, canteen-shaped, with dark head on one side; decorated with flowers and birds.

2448. (39696). Bird's head on top, tail present, no handle; jug-shape; feather on back, scrolls and flower on the side.

2449. (39697). Animal's head; no tail; open on top as well as through a spout; scalloped margin; birds and twigs on the body.

2450. (39698). Similar in form to the preceding, and with similar decorations.

2451. (39699). Similar in form, but not open on top. Man, boy, and birds, with lines or shading to represent the ground.

2452–2458. 2452, (39701); 2453, (39713); 2454, (39715); 2455, (39720); Fig. 628; 2456, (39725), Fig. 629; 2457, (39727); 2458, (39730). These are somewhat of bird form, with globular body and without tail. Nos. 2455, 2456, and 2457 are open on top, the others are not. Decorated with figures of birds, and sometimes flowers or twigs. The bird figures on No. 2453 (39713) are evidently intended for turkeys. This is without handle, and open at the top.

2459. (39700). Bird without tail; figures of deer and some other animal, also trees.

2460. (39703). Duck-shaped, without tail; rude figures of animals and birds.

2461. (39511). Fig. 630.

2462. (39704). Bird-shape, no tail; outline figures of Indians.

2463–2465. 2463, (39706); 2464, (39712); 2465, (39721), Fig. 632. Usual bird form as shown, and with similar animal figures.

2466. (39705). Resembles specimen shown in Fig. 629.

2467–2468. 2467, (39707), and 2468, (39708). Same form; decorations in outline, former of plants, latter of animals; rude.

2469. (39709). Same form; figure of an Indian chasing a deer.

2470–2471. 2470, (39710), and 2471, (39717). Fig. 631. Decorated with figures of fish.

2472. (39711). Usual form; oblique; double serrate band and figures of fish.

2473. (39714). Fig. 634.

2474. (39718). Fig. 633.

2475. (39719). Fig. 635.
2476. (39722). Fig. 636. This belongs to the globular group above described.
2477. (39723). Similar to the preceding and belongs to the same group; with figures of sheep and fish.
2478. (39724). Fig. 637.
2479. (39726). Fig. 638. A true canteen.
2480. (39728).
2481. (39729). Fig. 639.
2482. (39508). Bird with tail more elongate in form than usual. Oblique checkered band on the side.
2483. (39514). Similar to water jars in the form of birds, and without handles.
2484. (39562). Fig. 640.
2485. (39515). Rosette of leaves on the back; tail well formed, probably represents the dove.
2486. (39516). No head, merely a spout; decorations simple.
2487. (39517). Evidently intended for a hen.
2488. (39518). Fig. 642.
2489. (39584). Simulates a hen; feathers on the back, deer on the sides.
2490. (39585). With handle, wings rudely figured. Shown in Fig. 641.
2491. (39586). Similar in form to No. 2480; wings represented by figure, behind them the figures of a bird, evidently a duck, resembling the head of the vessel. Of the usual tea-pot shape.
2492. (39583). Without handle, canteen-shaped; open on top, with head apparently of turtle on one side: decorations, bird and rosette.
2493. (39580). Fig. 643. Simple jar.
2494. (39576). Fig. 644. Figure of a priest.
2495–2496. 2495, (39777), and 2496, (39778). Simple water jars of black ware, pitcher-shaped, with slight projection on the body for handle. These were evidently obtained from some other tribe.

EATING BOWLS.

There is but one specimen of Cochiti manufacture in the collection.
2497. (39512). Of ordinary shape; white ware, decorated with black on the inside only; a central ring with radiating corn-leaf figures.

ORNAMENTS, EFFIGIES, AND TOYS.

All small. White ware, slightly decorated unless otherwise specified.
2498. (39520). Head of some animal too rude to identify.
2499. (39521). Double-headed bird figure on a pedestal.
2500. (39526). Black ware. Sitting animal; very rude.
2501. (39527). Black ware. Probably jack-rabbit; handle at the back.

Fig. 635

39719
(1/3)

Fig. 636

39722
(1/3)

Figs. 635, 636.—Cochiti Water Vessels.

Fig. 637

39724
($\frac{1}{3}$)

Fig. 638

39726
($\frac{1}{3}$)

Figs. 637, 638.—Cochiti Water Vessels.

Fig. 639

39729
($\frac{1}{3}$)

Fig. 640

39562
($\frac{1}{3}$)

Figs. 639–640.—Cochiti Water Vessels.

Fig. 641

39585
$\left(\frac{1}{3}\right)$

Fig. 642

39518
$\left(\frac{1}{4}\right)$

Figs. 641, 642.—Cochiti Water Vessels.

Fig. 643

39580
1
3

Fig. 644

39576
1
3

Figs. 643, 644.—Cochiti Water Vessels.

FIG. 645

39857
(1/2)

FIG. 646

39825
(1/3)

FIG. 647

39824
(1/2)

FIGS. 645-647.—Cochiti Effigies.

2502. (39528). Blaek ware. Young birds. The three last mentioned are most likely from some other pueblo.
2503. (39824). Fig. 647. Black ware.
2504. (39825). Fig. 646. Black ware.
2505–2506. 2505, (39826), and 2506, (39827). Similar grotesque figures of black ware.
2507. (39854). Double-headed figure of a bird on pedestal.
2508. (39855). Bird on pedestal; ruffled back.
2509–2518. 2509, (39856); 2510, (39857), Fig. 645; 2511, (39858); 2512; (39859); 2513, (39860); 2514, (39861); 2515, (39769); 2516, (39775); 2517, (39883); 2518, (39862), are figures of birds on pedestals, exeept No. 2514, whieh is the figure of a little duek, and probably is a toy water vessel.
2519. (39524). A toy cup or basket in the shape of an olla, with handle, the figure of the little water inseet or worm appears on this, the only instanee in the Cochiti pottery.

COLLECTION FROM SANTO DOMINGO.

ARTICLES OF CLAY.

WATER VESSELS.

There are but nine pieees of this pottery, and all but two of these are small images or drinking vessels in the form of birds.

2520. (39510). A double globe jar or canteen. White ground, with ornamentations in black, as seen in Fig. 649. Depression in the center is probably designed to reeeive a band or cord to earry it with.
2521. (39513). Large black bowl; no ornamentation.

Images of black ware; two pieees; a bird on pedestal and a quadruped.

2522–2523. 2522, (39652*a*); 2523, (39652*b*).
2524–2525. 2524, (39653), and 2525, (39654). Human images, very rude.
2526. (39658). Bird on pedestal.

Small drinking vessels in the form of birds. White ornamented ware.

2527. (39655). With four rows of dots on the side; no tail.
2528. (39656). With handle; tail and neck ornamented.
2529. (39657). No ornamentation exeept a line or two and some dots on the head. Fig. 648.

COLLECTIONS FROM TESUKE.

ARTICLES OF STONE.

METATES, MORTARS, ETC.

2530. (39809). Stone metate for grinding grain, brown sandstone.

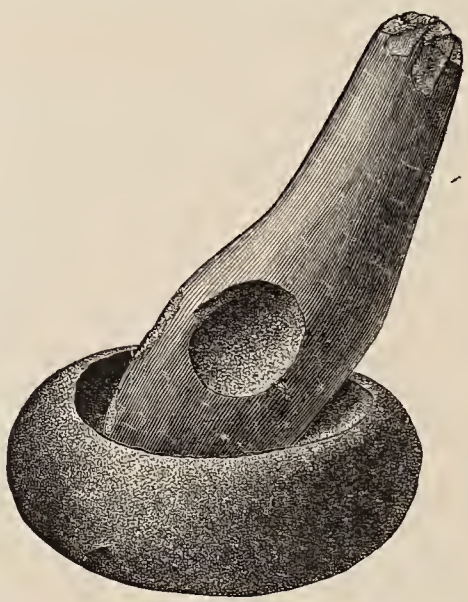
2531. (39810). Quartzitie stone mortar for grinding mineral pigment.

2532. (39811). Quite small mineral pigment mortar of quartz rock.

2533. (39821). Gaming ball of fine-grained sandstone.

2534. (42215). Discoidal quartz pounder.

2535. (42341). Fig. 650. Paint mortar. This mortar was made from a somewhat rounded sandstone boulder by grinding out a cavity. In the cut, which was drawn for another purpose, the pestle is represented with a small cup-shaped cavity on one side of it, in which the fluid pigment from the mortar was poured and used with the brush of the artist for decorative purposes. This is the only specimen of the kind in the collection, and the only one found where the pestle combines the cup with it.



42341
1/2
FIG. 650.

ARTICLES OF CLAY.

WATER VASES.

This group, though comparatively small, contains some of the largest and grandest pieces in the entire collection, some of the vases being twenty inches in height and twenty-two in diameter, having a capacity of ten gallons. It consists of white ware with decorations in black, bearing a strong resemblance to that of Cochiti, brown micaceous, and polished brown ware without ornamentation, and black ware without ornamentation.

Fig. 648

39657
(1/2)

Fig. 649

39510
1/3

Figs. 648–649.—Santo Domingo Canteen and Effigy.

Tinajas or vases. Well formed and similar in shape to those from Cochiti.

2536. (39507). With oblique diamond figures on the neck, and geometrical figures on the body.

2537. (39520). Upper half only decorated with rude figures of leaves and twigs.

2538. (39523). Similar to the preceding.

2539. (39525). Without neck; a broad and true meander band around the middle, with three-leaved flower above and below on each coil.

2540. (39530). Neck ornamented with a straight and an undulate line; body as in No. 2539.

2541. (39531). With rosette and triangular figures somewhat similar to those on Zuñi ollas.

2542. (39532). Decorations similar to those on Cochiti olla, No. 2421.

2543. (39801). Covered; a beautiful specimen, probably the most chaste and artistic of the entire collection.

2544. (39533). Fig. 651. Similar to the preceding.

2545. (39534). Serrate band around the neck; body with broad band and large circular spaces, each having four dark indentations.

2546. (39542). Neck with straight and undulate lines and short sigmoid figures; body with figures of a plant.

2547. (39549). Neck similar to the preceding; body with a zigzag line dotted along the upper side, and small ovoid spots above and below it, one in each indentation.

2548. (39635). Plain black, polished, large.

2549. (39639). Like the last.

2550. (39660). Large size; dotted line around the neck; heavy band around the shoulder, with sharp and long serrations pointing downward; body with alternate ornamental ovals and four-pointed stars.

2551. (39661). Straight and undulate lines around the neck; body divided into spaces by broad, double-scalloped, perpendicular stripes, having the middle white with an undulate line in the white portion; the intermediate spaces have a sun-shaped figure in the upper corner, from which a double serrate stripe descends obliquely.

2552. (39664). Birds and undulate line on the neck; a straight line with ring dots on the shoulder, broad meander band, with triple leaf ornament around the body.

2553. (39665). Neck with meander as in the preceding; a slender vine, well made, around the body.

2554. (39682). Rather slender; undulate margin; vine around the neck; body with broad band of three-leaved flowers.

2555. (39683). Neck with straight and undulate lines; body with undulate line terraced above as heretofore described, but above this is a row or band of small distinct ovals.

2556. (39685.) Black, without ornamentation.
2557. (39686). Large bowl-shaped olla, without neck, decorated with vine, cross, scrolls, &c.
2558. (39687).
2559. (39740). Upper half with marginal scalloped band, from which hang, obliquely, leaves with bent spines on their margin; below this a serrate and then a double straight line.
2560. (39741). Squatted in shape. Vine with leaves around the middle of the body.
2561. (39772). Small; slender vine around the neck, dotted line around the shoulder, and three-leafed vine around the body.
2562. (39773). With flaring rim; scalloped band around the margin; regular zigzag line around the shoulder, from each lower point of which descend plants.
2563. (39789). Same decorations as No. 2539, but of the regular form.
2564. (39800). Small scalloped lines around the body.
2565. (39802). Brown, without ornamentation.
2566. (39803).
2567. (39805).
2568. (39806). Fig. 652.
2569. (39813). Fig. 654.
2570. (39814).
2571. (39815). Neck colored, with a white zigzag line running through it; body with curious, large leaf-like ornaments of an angular shape.
2572. (39817). With similar leaf-like figures, but narrower and differently arranged. Shown in Fig. 653. The piece is injured, and the cords seen in the figure were tied about it by the natives to keep it from going to pieces.
2573. (39816). With a large zigzag band around the upper half of the body, terraced above and below.
2574. (39818). Very large and beautiful specimen, decorated on the body somewhat like some of the Zuñi pottery. The large circular scrolls are formed of a vine with leaves on the outer side. There are but few of the triangular figures seen in the Zuñi piece; there is a regular and true serrate marginal band; below this on the neck a broad band with diamond spaces.
2575. (39819). With a broad band around the neck composed of squares placed obliquely, with an oblong white space in each; body with a simple, narrow, straight band or double line.
2576. (39822). Large scalloped band around the neck, a little leaf pendant from each point; the body with alternate large stars and ornamental diamonds.
2577. (39823). This has the rim slightly flaring, a scalloped band and leaves around the neck; the body profusely decorated with geometrical figures. This belt is divided into four spaces, in each of

Fig. 651

39533
(1/4)

Fig. 652

39806
(1/5)

Figs. 651, 652.—Tesuke Water Vases.

FIG. 653

39817
(1/8)

FIG. 654

39813
(1/3)

FIGS. 653, 654.--Tesuke Water Vases.

2607. (39688). Decorated on inner surface only. A central flower and submarginal band of oval leaves.
2608. (39742). Biscuit-shaped; zigzag line, with two leaves at each point on the outside.
2609. (39743). Plain red, flower-pot shaped.
2610. (39744). Flower-pot shaped, with zigzag lines or vines running up and down, a leaf at each point.
2611. (39776). Largest bowl of the group.
2612. (39787). Regular shape; zigzag band on the outside.
2613. (39798). Small, regular shape, with vines on the inside.
2614. (39799). Small figures and birds on the inside.

COOKING VESSELS.

These are always plain black ware, and are of several forms.

Pots. Shaped like the Zuñi vessels.

2615–2632. 2615, (39601); 2616, (39602); 2617, (39605); 2618, (39606); 2619, (39607); 2620, (39608); 2621, (39611); 2622, (39670); 2623; (39671); 2624, (39689); 2625, (39735); 2626, (39736); 2627, (39737); 2628, (39738); 2629, (39794); 2630, (39795), with handle; 2631, (39828); 2632, (39874).

Bowel-shaped:

2633–2635. 2633, (39603); 2634, (39604); 3635, (39615), with handle. See Fig. 657.

Platter-shaped:

2636–2646. 2636, (39609); 2637, (39610); 2638, (39612); 2639, (39614); 2640, (39690); 2641, (39691); 2642, (39692); 2643, (39693); 2644, (39694); 2645, (39695), shown in Fig. 659; 2646, (39739).

TOYS.

2647, (39791). Ornamented bird on pedestal.

Blackbirds on pedestals:

2648–2657. 2648, (39804); 2649, (39807); 2650, (39808); 2651, (39820); 2652, (39829); 2653, (39830); 2654, (39831), Fig. 656; 2655, (39832), Fig. 658; 2656, (39833); 2657, (39836).

VEGETAL SUBSTANCES.

MEDICINES.

2658. (39751). *O-sha.* Root used as medicine for rheumatism, internally and externally.
2659. (39752). *Zerba-lobo.* Wolf root, for pulmonary complaints.
2660. (39753). *O-cha.* Root used for rheumatism.
2661. (39754). *Ka-cha-na.* Root, semi-medicinal and magic. To prevent breach or wounds, and for sore eyes; external use.

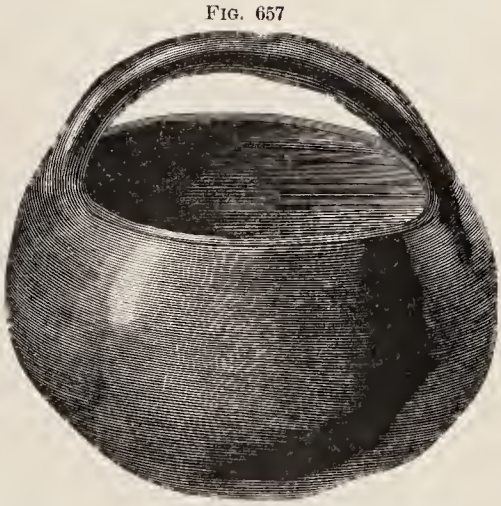
Fig. 655

39812
(1/3)

Fig. 656

39831
(1/2)

Fig. 657



39615
(1/4)

Fig 658

39832
(1/2)

Fig. 659

39695
(1/2)

Figs. 655–659.—Tesuke Vessels.

COLLECTIONS FROM SANTA CLARA.

ARTICLES OF CLAY.

WATER VASES.

This is all black and frequently polished ware without ornamentation. The method of producing the black polish is explained in another part of the catalogue.

Bowls and ollas. Black, without ornamentation. Some of these are of comparatively large size.

2662–2670. 2662, (39645); 2663, (39748), Fig. 662; 2664, (39749); 2665, (39750); 2666, (39779); 2667, (39780), Fig. 660; 2668, (39781); 2669, (39782); 2670, (39786). A very pretty covered jar; cover with a handle. Fig. 672.

2671. (39838). Small with scalloped margin.

2672. (39866).

2673 (39629). Fig. 661. Vase with depressed band around the center; rim forming a band; base small.

2674. (39834). Double lobed bottle or canteen. See Fig. 671.

EATING BOWLS.

These are of black polished ware without decoration of any kind, and of various forms, globular, bowl-shaped, and platter-shaped or true platters.

Globular and small:

2675–2676. 2675, (39556), and 2676, (39616).

Bowl-shaped:

2677–2678. 2677, (39617), and 2678, (39618). With flared and notched rim.

2679–2680. 2679, (39619), Fig. 667, and 2680, (39620). These two with flared and scalloped rim.

2681. (39621). A cooking vessel.

2682–2689. 2682, (39628), Fig. 669; 2683, (39632), Fig. 663; 2684,(39646), Fig. 664; 2685, (39633); 2686, (39636); 2687, (39637); 2688, (39638); 2689, (39643).

Platter-shaped:

2690–2691. 2690, (39630), and 2691, (39640). Scalloped rim.

2692–2698. 2692, (39641); 2693, (39642); 2694, (39646), see Fig. 664; 2695, (39649), scalloped rim; 2696, (39784); 2697, (39785); 2698, (39796).

2699. (39793). Fig. 668. Small platter-shaped dish of black polished ware.

COOKING VESSELS.

2700. (39794). Small pot, no handle.
2701. (39795). Small pot with handle.
2702–2705. 2702, (39623); 2703, (39626), Fig. 670; 2704, (39627); 2705, (39629). Small pots without handles, with a constriction or indentation around the middle.
2706–2707. 2706, (39837), and 2707, (39840). Small pitchers with handles and lips.
2708. (39839). Canteen with spout and mouth above.

EFFIGIES.

Bird figures, polished, on pedestals. All similar to those shown in the figures.
2709–2720. 2709, (39841); 2710, (39842); 2711, (39843); 2712, (39844); 2713, (39845); 2714, (39846); 2715, (39847); 2716, (39848), Fig. 666; 2717, (39849), Fig. 665; 2718, (39850); 2719, (39554); 2720, (39555). The last two are hollow, with an orifice in the back; no pedestal.
2721. (39553). Canteen in shape of a bird; no pedestal.

COLLECTIONS FROM SAN JUAN.

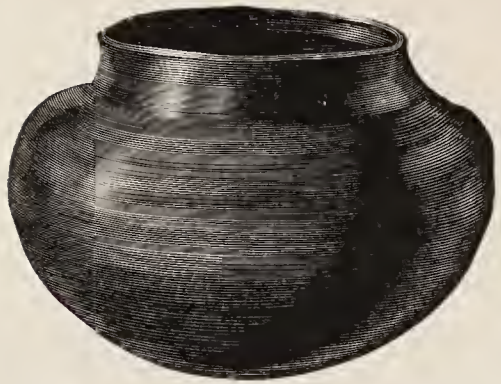
ARTICLES OF CLAY.

EATING BOWLS.

2722–2723. 2722, (39587) and 2723, (39588). These two with handles on each sides. Sides straight.
2724–2725. 2724, (39589), and 2725, (39590). Biscuit-shaped, as shown in Fig. 675.
2726. (39591). Platter-shaped, with scalloped margin.
2727. (39592). Red ware, of medium size, with outer broad marginal band of triangular figures.

Pots. Plain black:
2728–2731. 2728, (39593); 2729, (39594); 2730, (39747); 2731, (39625). Canteen-shaped, with handles or ears at or near the top; small circular orifice. See Fig. 673.
2732. (39650). A similar vessel of black ware, with larger orifice, the margin of which is scalloped. Large ears or handles near the top on each side. Bottom oval, and an impressed band around middle of body. In some of the canteen-shaped vessels this depression is for holding the cord with which the vessel is transported. See Fig. 674.

Fig. 660

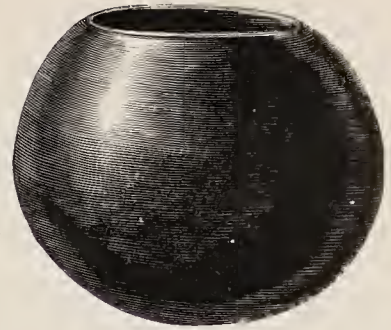


39780
(1/3)

Fig. 661

39629
(1/2)

Fig. 662

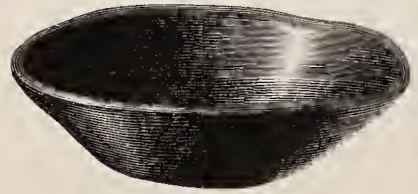


39748
(1/3)

Fig. 663

39632
(1/2)

Fig. 664



39646
(1/3)

Fig. 665

39849
(1/2)

Fig. 666

39848
(1/2)

Figs. 660-666.—Santa Clara Pottery.

FIG. 667 (39619)
1/5

FIG. 668 (39793)
1/4

FIG. 669 (39628)
1/4

FIG. 670 (39626)
1/4

FIG. 671 (39834)
1/4

FIG. 672 (39786)
1/4

Figs. 667 – 672. SANTA CLARA POTTERY.

FIG. 673

39625
(1/2)

FIG. 674

39650
(1/3)

FIG. 675

39590
1/3

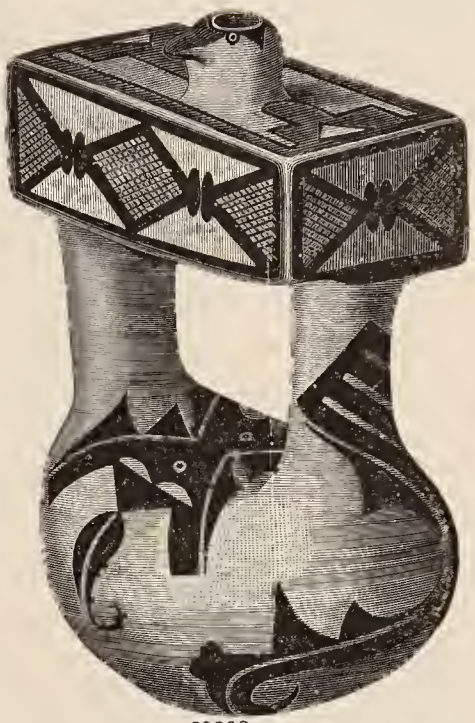
FIGS. 673–675.—San Juan Pottery.

2733. (39659). A jug-shaped pitcher of decorated red ware, with regular handle neatly formed. Ornamented with a looped vine and twigs, with leaves well drawn; neck slender and orifice with lip, but less in proportion than in ordinary pitcher.

COLLECTION FROM JEMEZ.

ARTICLES OF CLAY.

2734. (39926). Fig. 676. A very singular and pretty water vessel, obtained at the Jemez pueblo. White ware decorated in black and brown. It is probable that the peculiar form is given from mere fancy, and not for the purpose of adapting it to any particular use, as it appears to be simply a water vessel.



39926
1/3
Fig. 676.

COLLECTION FROM THE JICARILLA APACHES.

ARTICLES OF CLAY.

This is a light brown micaceous ware, and the pieces are all small, or comparatively so. They consist of pots, pitchers, and cups.

This small collection, though not obtained directly from the Jicarilla Apaches, is attributed to them, for the reason that wherever found among other tribes it is by them accredited to the Apaches. It is manufactured, however, by some of the Pueblos along the Rio Grande, and occasionally by the more western Pueblos. The party did not visit the Apaches mentioned, and are not positively certain that they manufacture pottery. These facts are mentioned in this connection to show that there is some question as to the origin of this small collection.

Vase-shaped pots:

2735–2741. 2735, (39535); 2736, (39536); 2737, (39537); 2738, (39538); 2739, (39539); 2740, (39540); 2741, (39544). This and the next two have the rims scalloped.

2742–2744. 2742, (39545); 2743, (39546); 2744, (39547).

Pot-shaped:

2745–2751. 2745, (39595); 2746, (39596); 2747, (39597); 2748, (39598); 2749, (39599); 2750, (39600); 2751, (39851).

Pitchers and cups, with handles of regular form:

2752. (39543). Finger impressions around the middle.

2753–2754. 2753, (39540), and 2754, (39548). Scollaped margin.

2755. (39770). With an undulate impressed line around the middle.

Miscellaneous:

2756. (39852). Incense-burner, somewhat in the shape of a beaver hat, with a rim in the form of a bird; a small orifice in the middle.

2757. (39853). Bird image.

COLLECTIONS FROM OLD PECOS.

ARTICLES OF STONE.

2758. (39756). Flint scraper. Rudely shaped, of hard cherty rock, flat on the inner face, convex on the back.

2759. (39757). An irregular square flat piece of sand-stone, on one side of which is a small circular cup-shaped depression.

2760. (39758 *a*). A small mortar composed of fine-grained sand-stone, half broken away; being of quite soft stone, it was probably used for pulverizing food of some kind.

2761. (39758 *b*). Quartz mortar made from a round water-worn boulder. The cavity is symmetrical; diameter five inches.

2762. (39759). Half of a cherty water-worn boulder from which flakes for flints have been chipped.

2763. (39760). Small round cherty boulders, frequently used in chipping for flints, but in this instance they seem to have been used as hammers.

2764. (39761). Hammer made from a section of a broken rubbing or grinding stone of calcareous rock.

2765. (39762). Maul from broken rubbing stone or grinder, grooved at each end; rhyolite.

2766. (39763). Rudely shaped sinker (or what is called a sinker), rounded at each end and grooved in center; schistose rock.

2767. (39764). Rudely shaped chisel or celt of metamorphic schist.

2768. (39759). Rough chipping stone; agate.

2769. (39760). Three irregular round balls of flint-stone, flaked by hammering.

ARTICLES OF CLAY.

2770. (41771). Fragments of pottery from the old and new court, exhibiting Spanish glaze.

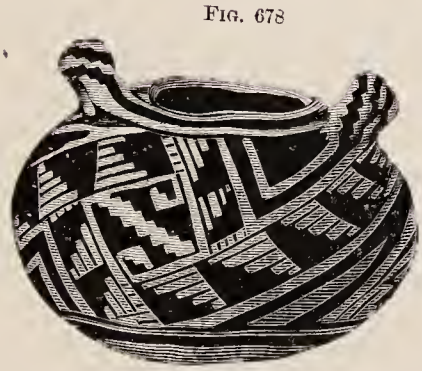
2771. (41772). Pottery fragments, decorated in colors. Old and new court.

2772. (41773). Ancient fragments, glazed.

Fig. 677

40814
(1/3)

Fig. 678



40813
(1/3)

Fig. 679

40815.
(1/4)

Fig. 680

40816.
(1/4)

Figs. 677-680.—Water Vessels from Cañon de Chelly.

2773. (41774). Fragments of pottery from the old court, showing glaze with white ground.
2774. (41775). Miscellaneous fragments of pottery from various parts of the ruins.
2775. (41794). Fragments of pottery, showing white coating, from new court.
2776. (41796). Pottery fragments, showing Spanish glaze inside; new court.
2777. (41797). Fragments with edges chipped.
2778. (41798). Rim pieces of black pottery were from the old court.
2779. (41799). Fragments of red pottery from new court.
2780. (41800). Fragments of plain pottery from both old and new courts.
2781. (42344). Specimens of adobe mortar from the walls of the Pecos ruins.
2782. (42345). Specimen of same.
2783. (42373). Chimney pots from Casa Blanca, Old Pecos.
2784. (42374). Very large cooking pot in fragments from Casa Blanca, Old Pecos.

ARTICLES OF WOOD.

2785. (41276). Beam of wood from the old court.

COLLECTIONS FROM THE CAÑON DE CHELLY.

ARTICLES OF CLAY.

WATER VESSELS.

2786–2789. 2786, (40813), Fig. 678; 2787, (40814), Fig. 677; 2788, (40815), Fig. 679; 2789, (40816), Fig. 680. These pieces are white ware, decorated with black. The colors in great part still remain, showing that they are comparatively modern. The lines represent colors and not indentations.

2790. (40796). Fig. 681. Upper part broken; supposed to have been a pitcher, as part of the handle remains. From Cliff House ruins, Cañon de Chelly. Red ware. Comparatively modern.

The following articles are ancient ware, from the same place as the preceding:

2791. (40600). Small vase of white ware, probably comparatively modern. The design, though simple, is somewhat peculiar and different from what is usually found on pottery of the present day. See Fig. 683.

2792. (42202). Fig. 682. Similar in form, size, and color to the preceding; the design, as will be seen by reference to the figure, is a common one.

2793. (40812). Pitcher. White ware, with black decorations. See Fig. 690.

2794–2795. 2794,(40819), Fig. 691, and 2795, (40820), Fig. 688. Pitchers, white; ware figured.

2796. (40824). Very small pitcher with handle; of uncolored ware.

2797. (42203). A very pretty pitcher of white ware, with decorations in black, much faded, showing age, although so well and truly formed it is evidently not modern. Fig. 692.

2798. (40601). A round-bottomed pitcher-shaped vessel, white ware with black lines; the colors are much faded, showing age. Fig. 689. The design is evidently of a previous age, and we will be justified, perhaps, in saying that it belongs to the period of transition from the rigid lines and angles to the curves.

2799. (40811). Fig. 687. Small pitcher, *e-musch-ton-tsān-nā*, originally of white ware; bowl uncolored.

BOWLS.

2800. (40823). Small bowl, with handle each side, white, with black colors. Fig. 684.

2801. (40825). A small paint-pot shown in Fig. 685.

2802. (40857). Fig. 686. A small pot, apparently blackened by fire, unadorned except with the spine-like projections around the lower half; probably used for a paint-pot.

COOKING VESSELS.

2803–2806. 2803, (40817), Fig. 693; 2804, (40818), Fig. 696; 2805, (40821), Fig. 695; 2806, (40822), Fig. 694. These are the old corrugated ware, but with the exception of the third they do not show the action of fire, but were probably used for cooking vessels.

39873
(1/4)
FIG. 697.

COLLECTIONS FROM PICTOGRAPH ROCKS.

ARTICLES OF CLAY.

2807. (39873). Fig. 697. A corrugated pot 11 inches high and 10 inches in diameter at the widest point. Evidently coil-made; the different coils slightly overlap each other tile-fashion. On the inside it is smooth and does not show the coils. It has been blackened by the fire, the original color having been a dark slate, the natural color of the clay. It was evidently but slightly burned at first; very ancient.

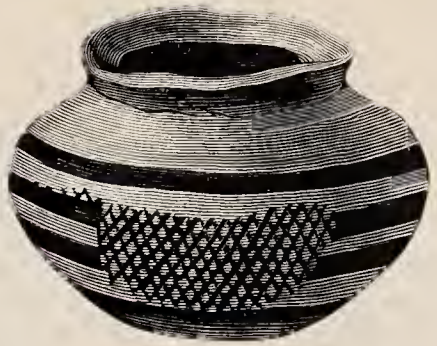
Fig. 681

40796
(1/4)

Fig. 682

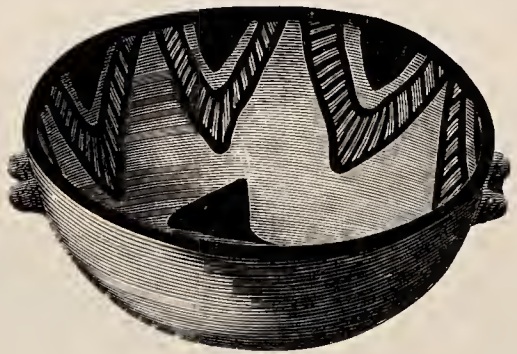
42202
(1/3)

Fig. 683



40600
(1/2)

Fig 684



40823
(1/2)

Fig. 685

40825
(1/2)

Fig. 686

40857
(1/2)

Figs. 681–686.—Ancient Pottery from Cañon de Chelly.

Fig. 687

40811.
(1/3)

Fig. 688

40820.
(1/2)

Fig. 689

40601
(1/2)

Fig. 690

40812.
(1/4)

Fig. 691

40819.
(1/3)

Fig. 692

42203.
(1/3)

Figs. 687–692.—Ancient Pottery from Cañon de Chelly.

Fig. 693

40817.
(1/4)

Fig. 694

40822
(1/3)

Fig. 695

40821
(1/4)

Fig. 697

40818
(1/3)

Figs 693–696.—Cooking Vessels from Cañon de Chelly.

COLLECTIONS FROM OTHER LOCALITIES.

ARTICLES OF CLAY.

MISCELLANEOUS.

2808. (39529). Black, polished olla, rather large; from Ponake Pueblo.

2809. (39551). Unadorned moccasin from Pueblo of New Mexico.

2810. (41770). Fragments of pottery, ornamented, colored, and plain, from ruins near Pueblo of Nutria.

2811. (41776). Fragments of plain pottery from Agricultural Camp, six miles east of San Antonio Springs.

The following specimens are from the same locality:

2812–2818. 2812, (41777), painted; 2813, (41778), corrugated; 2814, (41779), ribbed; 2815, (41780), bird's head painted on it; 2816, (41781), painted; 2817, (41782), corrugated; 2818, (41783), ribbed.

2819. (41784). Fragments of pottery from Old Zuñi Mesa, three miles southeast of Zuñi.

2820–2822. 2820, (41785); 2821, (41786); 2822, (41787), are fragments of the corrugated, ribbed, indented, and decorated ware, from the Zuñi Mesa.

2823–2825. 2823, (41791); 2824, (41792); 2825, (41793), are also fragments of pottery from the Zuñi Mesa.

2826. (41795). Fragments of pottery from top of Zuñi Church.

2827–2829. 2827, (41788); 2828, (41789); 2829, (41790). Fragments of ancient pottery from the environs of Wolpi. The specimens are of the corrugated and laminated forms and are decorated in color.

2830. (41981). Notched stick, with bone, used as musical instrument. See description of similar objects from Wolpi.

2831. (42224). Small wooden ladle; locality not known.

2832. (42049). Fragment of pottery with the edges ground off, probably a pottery trowel, from Pictograph Rocks, about sixty miles east of Fort Wingate, N. Mex.

2833. (42252). Fragment of pottery from Wolpi may be a charm, but likely a pottery smoother or trowel.

2834. (42348). Chips of jasper and fragments of pottery from mound in Missouri, opposite St. Louis.

2835. (42368). Handle of pottery ladle from Wolpi.

2836. (42370). Portion of large yellow corrugated vessel from near Wolpi.

STATUETTES.

The following numbers are specimens of statuettes, of micaceous clay, representing human beings in various attitudes, both male and female.

They are attributed to the Cochiti Pueblos, but as they were obtained in Santa Fé from traders, the correctness of their origin may be doubted. They were made, however, by some of the Rio Grande Pueblos not very remote from Santa Fé:

2837–2858. 2837, (42001); 2838, (42002); 2839, (42003); 2840, (42004); 2841, (42005); 2842, (42006); 2843, (42007); 2844, (42008); 2845, (42009); 2846, (42010); 2847, (42011); 2848, (42012); 2849, (42013); 2850, (42014); 2851, (42015); 2852, (42016); 2853, (42017); 2854, (42018); 2855, (42019); 2856, (42020); 2857, (42021); 2858, (42022).

SMITHSONIAN INSTITUTION——BUREAU OF ETHNOLOGY.

ILLUSTRATED CATALOGUE

OF THE

COLLECTIONS OBTAINED FROM THE INDIANS

OF

NEW MEXICO IN 1880.

BY

JAMES STEVENSON.

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MAP

OF THE

PROVINCE OF TUSAYAN

ARIZONA

Surveyed by A. L. WEBSTER
1881

SCALE: 0 1 2 3 4 MILES.

PHOTO-ENG. CO N.Y.

Prepared in the Office of the U. S. Geological Survey.

ILLUSTRATED CATALOGUE OF THE COLLECTIONS OBTAINED FROM THE INDIANS OF NEW MEXICO IN 1880.

By James Stevenson.

INTRODUCTION.

It is thought best that I should give, in connection with the catalogue of collections made by the party under my charge in 1880–'81, a brief statement in relation to the collections described in the catalogues, and the information obtained in regard to the Pueblo tribes.

Our explorations during the field season of 1880 and 1881 were restricted to the Pueblo tribes located along the Rio Grande and its tributaries in New Mexico. The chief object in view was to secure as soon as possible all the ethnological and archæological data obtainable before it should be lost to science by the influx of civilized population which is being rapidly thrown into this region by the extension of railroads into and through it. Not only are the architectural remains being rapidly destroyed and archæological specimens collected and carried away by travelers, excursionists, and curiosity hunters, but the ancient habits and customs of these tribes are rapidly giving way and falling into disuse before the influence of eastern civilization.

Our party, consisting, besides myself, of Mr. Galbraith, archæologist, Mr. Morancy, assistant, and Mr. J. K. Hillers, photographer, proceeded to Santa Fé, N. Mex., where an outfit was secured for the season's work. From here we proceeded to Taos, one of the most extensive pueblos in the Rio Grande region. This village is situated on the Rio Taos a few miles from the Rio Grande, and just under the shadow of the Taos Mountains. It comprises two large sections, one on each side of the Rio Taos. These are compactly built and each six stories high. The industrial pursuits of these Indians are principally pastoral and agricultural, they having a good market for their products in the Mexican village of Fernandez de Taos, containing a population of about 4,000 Mexicans and eastern people.

The party spent several days here making investigations and collections. The collection made was small but quite varied and novel, though few of the articles obtained were of their own manufacture.

Quite a number of stone implements were secured, among which

were some stone knives, pipes, a number of rude stone axes and hammers, arrow smoothers, &c. The pottery obtained here is chiefly of the common type and resembles that from San Juan, from whence in all probability it was received by exchange and barter. Earthenware, so far as I can learn, is not now made in Taos, except by a few families where a Taos Indian has married a woman from San Juan or some other tribe where the manufacture of pottery is carried on. If this industry was ever practiced by the Taos Indians it must have been at a remote period; in fact there seems to be no tradition of it now among them.

From here we went next to the pueblo of San Juan, situated on the left bank of the Rio Grande, about 50 miles south of Taos. At this pueblo a collection was made of stone implements, articles of clay, &c. These specimens are not quite so representative as those from some of the more southern pueblos, the village being situated on one of the military wagon roads, over which many Europeans pass, and hence frequently visited; many of the most valuable specimens of implements and pottery have been bartered away; however, those we obtained display quite fully all the industries of the people of this pueblo. This collection consists of a number of fine stone mortars, pestles, arrow and spear heads, also several polishing stones. Quite a number of small animal forms carved out of stone were also secured. At this pueblo many specimens of the black polished ware peculiar to a few of the tribes in the Rio Grande Valley were collected.

From San Juan we proceeded to Santa Clara, situated a few miles below on the right bank of the Rio Grande. This pueblo proved to be so interesting in its surroundings that some time was spent here in making investigations. We found the people extensively engaged in the manufacture of that black polished pottery of which so little has been known heretofore, especially in regard to the process of baking and coloring it, which is fully described in the text accompanying the catalogue of last year in this volume. The larger portion of the specimens of earthenware obtained here was of this kind, though several specimens of the red and some few of the ornamented class were also secured.

Most of the pottery manufactured at this village is the black polished ware. That of the decorated class is ornamented with the juice of *Cleome integrifolia*, which is fixed in the ware in the process of burning. Mineral substances, so far as I could learn, are not used by the Indians of Santa Clara in decorating their pottery.

Among the specimens are a number of interesting stone implements, nearly all of an older kind than any made by this people at the present day.

During our stay at this pueblo some interesting archæological discoveries were made of which a brief mention in this connection may not be out of place, and which will certainly prove of great interest to future investigators. Between the Rio Grande and Valle Mountains, commenc-

ing about 12 miles below, or south of Santa Clara, and extending south to within ten miles of Cochití, a distance of about 65 miles, is an extensive area, the intermediate elevated portion of which is composed of a yellowish volcanic tufa, of coarse texture and sufficiently soft and yielding to be readily worked or carved with rude stone implements. Over this entire area there are irregular elevations, somewhat circular in outline, from 50 to 200 feet in height, the faces of which have been worn away by the elements, and are in nearly all instances perpendicular. These consecutive elevations extend back from the Rio Grande from five to fifteen miles. Over this whole expanse of country, in the faces of these cliffs, we found an immense number of cavate dwellings, cut out by the hand of man. We made no attempt to count the number of these curious dwellings, dug like hermit cells out of the rock, but they may be estimated with safety among the thousands. I made many inquiries of the neighboring tribes in regard to the history of these dwellings, but could elicit no information from any of them. The response was invariably, "they are very old and the people who occupied them are gone."

An inspection of a portion of this area revealed a condition of things which I have no doubt prevails throughout. The dwellings were found in the faces of the cliffs, about 20 feet apart in many instances, but the distances are irregular. A careful examination satisfied me that they were excavated with rude stone implements resembling adzes, numbers of which were found here, and which were probably used by fastening one end to a handle.

The doorways, which are square, were first cut into the face of the wall to a depth of about one foot, and then the work of enlarging the room began. The interiors of the rooms are oval in shape, about 12 feet in diameter, and only of sufficient height to enable one to stand upright.

The process, from the evidences shown inside, of carving out the interior of the dwelling was by scraping grooves several inches deep and apart, and breaking out the intermediate portion; in this way the work progressed until the room reached the desired size. Inside of these rooms were found many little niches and excavated recesses used for storing household ornaments, the larger ones probably supplying the place of cupboards. Near the roofs of many of the caves are mortises, projecting from which, in many instances, were found the decayed ends of wooden beams or sleepers, which were probably used, as they are now in the modern Pueblo dwellings, as poles over which to hang blankets and clothing, or to dry meat. These dwellings were without fireplaces; but the evidences of fire were plainly visible at the side of each cave, and in none of those visited did we find any orifice for the egress of the smoke but the small doorway. On the outside or in front of these singular habitations are rows of holes mortised into the face of the cliffs about the doors. It is quite evident that these were for the insertion of beams of wood (for forming booths or shelters in the front), as ends of

beams were found sticking there, which, in their sheltered position and in this dry climate, may have been preserved for centuries.

Upon the top of the mesa of which these cliffs are the exposed sides we found the ruins of large circular buildings made of square stones 8 by 12 inches in size. The walls of some of these structures remain standing to the height of ten or twelve feet, and show that from four to five hundred people can find room within each inclosure. One of these buildings was rectangular and two were round structures. The latter were about 100 and 150 feet in diameter, the rectangular one about 300 feet square. Many small square rooms were constructed in the interior from large cut bricks of the tufa of which the bluffs are composed. These rooms all opened toward the center of the large inclosure, which has but one general doorway. From these ruins we secured great quantities of pottery, arrow and spear heads, knives, grinding-stones, arrow-smoothers, and many of the small flint adzes, which were undoubtedly used for making the blocks for the structures on the mesa and for excavating the cave dwellings. Among the débris in the dwellings are found corncobs and other evidences of the food used by the inhabitants. This certainly indicates that the people who occupied these singular dwellings were agricultural.

The faces of some of the more prominent cliffs contained as many as three rows of chambers one above the other; the débris at the foot, sometimes 200 feet deep, covered up at least two rows of these chambers.

Along the edges of the cliffs and over the rocky surface of the mesa are winding foot-paths from 3 to 10 inches deep, worn by the feet of the inhabitants. Some of these paths showed perceptible foot-prints where it was inconvenient for those following the path to do otherwise than tread in the footsteps of their predecessors.

In our limited investigations we were unable to discover any evidence of burial customs. No graves could be found, and nothing of human remains.

The southern portion of this area seems to have been most densely populated. Some of the protected walls in the neighborhood retain hieroglyphics in abundance. These resemble the picture writing of the present Indians of that region. Many interesting specimens of the art of this ancient people can be seen in the images of wild animals scattered over various spots. Many of them are cut in full relief out of the tufa and are always in some natural attitude, and can always be identified where the weather has not destroyed the original form. The most prominent are two mountain lions, side by side and life size.

Further examinations will reveal much more of value and interest in connection with this very inviting locality.

Mr. Galbraith, who accompanied my party, spent some time examining this region and made collections here.

The next pueblo visited was San Ildefonso, about five miles below Santa Clara, on the opposite bank of the Rio Grande. But few speci-

mens were obtained here. The people of this pueblo devote their time chiefly to agricultural and pastoral pursuits, and have almost abandoned the manufacture of pottery, that in use by them at the present time being mostly obtained from neighboring tribes.

From San Ildefonso we proceeded to Nambé, a pueblo which has become almost extinct. The remnant of this people is situated about 25 miles above Ildefonso, on Nambé Creek, and not far from the base of the mountains. The people of Nambé have several times in years past moved their pueblo higher up the stream, the valley of which furnishes them fine agricultural and grazing grounds. They make very little pottery, but we found stored in many of the houses of the village great quantities of stone implements, principally large metates and grinding-stones. We also found many specimens of interest among the ruins of old Nambé and Pojuaque, as well as the remains of pottery in such quantities as to show that in the past the manufacture of pottery had been carried on quite extensively. In this vicinity I made arrangements with one of the employés of the party, who had resided many years at Santa Fé, to make excavations and collections from the old sites of Nambé, Pojuaque, and Cuyamunque, in which he was quite successful.

From the pueblos north of Santa Fé we traveled direct to Cochití, 27 miles southwest of Santa Fé. This village is situated on the right bank of the Rio Grande and about three miles from Peña Blanca, a small Mexican town opposite. Here a very interesting collection was secured consisting mostly of pottery, many of the vessels simulating animal forms, variously ornamented with representations of some varieties of the flora of the locality. A few stone implements were also obtained here.

We next visited Jémez, situated on the Rio Jémez. From thence we went to Silla and Santa Ana. At each of these villages representative collections were made, all of which are referred to in detail in the catalogue.

The next villages visited were Santo Domingo and Sandia, on the Rio Grande. Some characteristic specimens were obtained at each of these pueblos. The method of their manufacture and the manner of using them are generally the same as in most of the other pueblos.

A small collection of rude stone hammers was obtained from the turquois mine in the Cerrillo Mountains, about 25 miles from Santa Fé.

The products of this celebrated mine, which were objects of traffic all over New Mexico, as well as contiguous countries, probably formed one inducement which led to the Spanish conquest of this region. The turquoises from this mine have always been valued as ornaments by the Indians of New Mexico, and carried far and wide for sale by them. The mine was worked in a most primitive manner with these rude stone hammers, a number of which were secured.

The collections are all now in the National Museum for study and inspection.

The following sketch is introduced here to show the method of using the batten stick represented in Fig. 546. There is not a family among the Pueblos or Navajos that does not possess the necessary implements for weaving blankets, belts and garters. Figs. 500–502 will convey an idea of the variety in design and coloring which prevails in this class of Indian fabrics, while Fig. 710 represents a blanket weaver at work. The picture is taken from a photograph made on the spot by Mr. Hillers, and is colored in accordance with the actual colors of the yarns and threads used in its manufacture.

The particular class of blankets represented in this illustration is woven in the estufas, and is used almost exclusively in sacred dances and ceremonies of the tribe, all other garments being made in the houses or in the open air. The Navajos are celebrated for their skill as blanket weavers, and the Mokis are equally skilled in the manufacture of a finer class of the same article, which is much sought after by the surrounding tribes for ornamental purposes in sacred and other dances.

The vertical threads, as shown in the figure, are the warp threads; the coarser thread which is inserted transversely between these is the yarn or weft. The three rods in the center of the blanket are lease rods, which are introduced among the threads of the warp to separate them and thus facilitate the insertion of the weft thread. These rods are each passed in front of one warp thread and behind another, alternately, across the whole warp, and between each rod the threads are brought from the back of one to the front of the next, and *vice versa*. The bar held in hands of the weaver serves as a batten for driving or beating the weft thread into the angle formed by the crossed warp threads.

This loom resembles in principle the ancient Egyptian, Grecian, and French looms which are described on pages 55 to 62 of "The History and Principles of Weaving by Hand and Power," by A. Barlow, London, 1878, and on pages 41 to 45 of the "Treatise on Weaving and Designing of Textile Fabries," by Thomas R. Ashenhurst, Bradford, England, 1881. See also pp. 200 to 208, Vol. II, of the "Cotton Manufacture of Great Britain," by A. Ure, London, 1861.

COLLECTIONS FROM CUYAMUNQUE.

ARTICLES OF STONE.

RUBBING STONES.

(Used as rubbers in grinding corn on metates.)

1–3. 1, (46506); 2, (46507); 3, (46517). Basalt.

4, (46510). Sandstone.

5, (46512). Conglomerate.

6–9. 6, (46513); 7, (46514); 8, (46515); 9, (46516). Mica schist.

10–11. 10, (46518); 11, (46529). Of hornblende schist; these are elongate and intended to be used with both hands.

12–13. 12, (46508); 13, (46567). Quartzite metates.

14–15. 14, (46509); 15, (46511). Sandstone metates, the latter but little used and almost flat.

16, (46551). Rubbing stone of andesite.

17–24. 17, (46555); 18, (46556); 19, (46557); 20, (46558); 21, (46561); 22, (46563); 23, (46569); 24, (46559). Small smoothing stone mostly of quartzite, one or two only of basalt. These are bowlders weighing from one to three pounds, rounded by natural agencies, and selected by the natives to be used for smoothing and polishing purposes. When much used they are worn down flat on one side, the side used being worn off, just as the rubbing stone in the old process of preparing paint.

25–26. 25, (46519); 26, (46520). Unfinished celts of basalt.

27, (46521). Crude hoe or adze of mica schist.

28, (46522). Schist stone with groove for smoothing arrow shaft, and hole for rounding point.

29–31. 29, (46523); 30, (46524); 31, (46525). Crude stone implements, supposed to be used for digging.

32–34. 32, (46526); 33, (46527); 34, (46528). Very crude stone implements, probably used for pounding.

35, (46530). Double-handled baking stone; basalt. The use of stones of this kind will be more particularly noticed hereafter.

36, (46531). Broken rounded mortar; basalt.

37, (47532). A small, oblong, mortar-shaped vessel of lava. The width three inches, length when unbroken was probably four and a half inches; width of inside two inches, length probably three and one-fourth inches, depth of cavity three-fourths of an inch. On the portion remaining there are four feet; originally there were doubtless six. On one side is a projection or handle similar in form and size to the feet.

38–54. 38, (46533); 39, (46534); 40, (46535); 41, (46536); 42, (46537); 43, (46538); 44, (46539); 45, (46550); 46, (46552); 47, (46553); 48, (46554); 49, (46560); 50, (46562); 51, (46565); 52, (46566); 53, (46568); 54, (47571). Pounding or hammer stones, some of them simple cobble stones, others with marks of slight preparation for use by chipping off or rubbing down prominences.

55, (46540). Sandstone with smoothed surface and groove for smoothing arrow shafts.

56–64. 56, (46541); 57, (46542); 58, (46543); 59, (46544); 60, (46545); 61, (46546); 62, (46547); 63, (46548); 64, (46564). Small stones, chiefly quartz, basalt, and agate, used for smoothing and polishing pottery.

65–68. 65, (46570); 66, (46572); 67, (46573); 68, (46574). Broken rubbers for metates.

69, (46988). Spear head. Basalt.

70, (46989). Arrow head. Obsidian.

ARTICLES OF CLAY.

(Only one perfect specimen obtained.)

71, (46575). A bowl.

72, (46718). Fragments of ancient pottery.

COLLECTIONS FROM NAMBÉ.

ARTICLES OF STONE.

73–78. 73, (46577); 74, (46578); 75, (46579); 76, (46580); 77, (46581); 78, (46583). Quartzite rubbing stones of an elongate form.

79, (46582). Similar to the last group, but appears to have been used as a pestle as well as a rubber.

80–85. 80, (46584); 81, (46585); 82, (49586); 83, (46587); 84, (46588); 85, (46589). Pounding stones, chiefly of quartzite. These are quite regularly formed, cylindrical or spindle-shaped, with blunt or squarely docked ends, from four to seven inches long and two to three inches in diameter, used chiefly in pounding mesquite beans.

86–89. 86, (46590); 87, (46591); 88, (46592); 89, (46593). Round, flattened, or disk-shaped quartzite pounders, medium and small sizes.

90–91. 90, (46596); and 91, (46597). Pounders similar to the preceding group, but smaller.

92, (46594). A flat or disk-shaped polishing stone of quartzite.

93, (46595). An oblong rectangular quartzite pounding stone.

94–105. 94, (46598); 95, (46599); 96, (46600); 97, (46601); 98, (46602); 99, (46603); 100, (46604); 101, (46605); 102, (46606); 103, (46607); 104, (46608); 105, (46609). Small irregular stones of jasper and basalt used in shaping and polishing pottery.

106, (46610). Elongate, well-worn, sandstone meal rubber or rubber for metate.

107, (46611). A stone bowl or basin made from an oblong, somewhat oval-shaped quartzite slab, and used for pounding and grinding mesquite beans. The length is 19 inches, greatest width 10 inches, depth of depression 2 inches.

108, (46612). Rather large disk-shaped smoothing stone of basalt.

109–114. 109, (46719); 110, (46720); 111, (46721); 112, (46722); 113, (46723); and 114, (46724). Rubbers for metates of the usual form, mostly of basalt, well worn, and most of them broken.

115–131. 115, (46725); 116, (46726); 117, (46728); 118, (46729); 119, (46732); 120, (46733); 121, (46734); 122, (46735); 123, (46739); 124, (46740); 125, (46741); 126, (46742); 127, (46743); 128, (46744); 129, (46749); 130, (46750); 131, (46761). Crude pounding stones, mostly simple cobble stones, more or less worn by use.

132–150. 132, (46727); 133, (46730); 134, (46731); 135, (46736); 136, (46737); 137, (46738); 138, (46745); 139, (46746); 140, (46747); 141, (46748); 142, (46751); 143, (46752); 144, (46753); 145, (46754); 146, (46755); 147, (46756); 148, (46757); 149, (46758); 150, (46759). Small and mostly polished smoothing stones, used chiefly in polishing pottery; all well worn; of jasper, quartzite; or basalt.

151, (46760). A broken grooved ax of basalt.

152, (47031). A very large metate, twenty-four inches long and fifteen inches wide, much worn, the middle of the curve being three and one-half inches below the surface.

153, (47048). Ax with groove on one edge.

154, (47049). Hammer with broad annular groove.

155, (47050). Hammer with lateral notches.

156, (47051). Ax, broken.

157, (48052). Grooved hammer.

158, (47056). Half of a large mortar, much worn.

159, (47058). Metate.

160, (47059). A small mortar, probably used for grinding and pounding chili (pepper).

ARTICLES OF CLAY.

Articles of clay from this pueblo, which are but few in number, are either of polished black ware or unpolished of the natural *tierra ama-*

rilla or yellow earth color, but more or less blackened by use. This ware is of precisely the same character and quality as the black pottery from Santa Clara. The pitchers, cups, and basins are evidently modeled after introduced patterns from civilized nations. All are without ornamentation.

161, (47033). Tinaja or olla, with narrow neck; *tierra amarilla*, blackened.

162, (47032). Tinaja or olla, rather small, polished black ware.

163–164. 163, (47034); 164, (47035). Pitchers of the ordinary form with handle and spout, about half-gallon size, polished black ware.

165, (47036). Small olla, yellow ware.

166, (47037). Small olla-shaped bowl; yellow ware.

167, (47038). A cup without handle.

168–171. 168, (47039); 169, (47040); 170, (47041); 171, (47042). Cups with handle similar in form and size to the ordinary white stone-china coffee cups; yellow-ware.

172, (47043). Cup similar in form and size to the preceding, but of polished black ware.

173, (47044). Small cup without handle; polished black ware.

174, (47045). Small cooking pot with handle; polished black ware.

175, (47046). A pear-shaped water vessel with two loop handles placed opposite each other near the mouth.

176, (47047). A large, polished black-ware basin of the usual wash-basin form, but with undulate border.

177, (47060). Small bowl, black polished ware.

COLLECTIONS FROM POJUAQUE.

ARTICLES OF STONE.

178–189. 178, (46613); 179, (46614); 180, (46615); 181, (46616); 182, (46617); 183, (46618); 184, (46619); 185, (46620); 186, (46621); 187, (46622); 188, (46657); 189, (46658). Hammers with groove around the middle. In 46618 the groove is double. They are of quartzite, lava, greenstone, metamorphic rock and basalt.

190–202. 190, (46623); 191, (46624); 192, (46625); 193, (46627); 194, (46639); 195, (46640); 196, (46641); 197 (46642); 198, (46644); 199, (45645); 200, (46646); 201, (46647); 202, (46648). Small smoothing-stones.

203, (46626). A triangular pounding-stone.

204–212. 204, (46628); 205, (46629); 206, (46630); 207, (46631); 208, (46632); 209, (46633); 210, (46634); 211, (46650); 212, (46652). Oval pounding-stones made out of rolled pebbles or bowlders.

213, (46635). Elongate slender implements of basalt, probably used in molding pottery, especially the larger flaring bowls.

214, (46636). A smaller implement of similar form used as a polisher for particular vessels.

215–216. 215, (46637); 216, (46638). Flat stones with straight groove for smoothing arrow-shafts.

217, (46643). An unfinished ax of basalt.

218, (46651). A mortar for pounding and grinding mesquite beans.

219, (46653). Rude, partially grooved ax.

220, (46654). Small quartzite pestle.

221, (46659). A very regular, much-worn basaltic metate.

222, (47926). A large, well-worn metate.

223–226. 223, (46660); 224, (47927); 225, (47928); 226, (47929). Rubbing stones for metate.

227–228. 227, (47930); 228, (47931). Broken hatchets with annular groove near the hammer end.

229–232. 229, (47932); 230, (47933); 231, (47934); 232, (47935). Rude hatchets or digging implements notched on the side.

233–234. 233, (47936); 234, (47937). Hammers or pounding-stones with groove around the middle.

235–248. 235, (47938); 236, (47939); 237, (47944); 238, (47951); 239, (47952); 240, (47953); 241, (47954); 242, (47955); 243, (47956); 244, (47958); 245, (47959); 246, (47963); 247, (47964); 248, (47965). Pounding-stones.

249–255. 249, (47940); 250, (47941); 251, (47942); 252, (47943); 253, (47960); 254, (47961); 255, (47962). Small smoothing-stones.

256, (47945). Quartz pestle.

257, (47946). Stone for crushing and grinding mesquite beans.

258–261. 258, (47947); 259, (47948); 260, (47949); 261, (47950). Small disk-shaped hammer-stones with finger pits or depressions usually on both sides.

262–265. 262, (47966); 263, (47967); 264, (47968); 265, (47969). Stones with flat surface and a single straight groove for polishing or straightening arrow-shafts.

266–267. 266, (47971); 267, (47972). Similar stones, with two and three grooves, used for same purpose.

268, (47970). Piece of soap-stone used for moulding bullets.

269, (47974). Rude mortar for grinding paint.

270, (47973). Muller for grinding paint in the paint mortar.

ARTICLES OF CLAY.

These are few and simple and chiefly of the yellow micaceous ware, some of it blackened by use so that the original color cannot now be observed. Some of the pieces are of red ware with ornamentations.

273–274. 273, (47431); 274, (47432). Pottery moulds for bottoms of vessels.

275, (47434). A pitcher-shaped teapot of red micaceous ware, with handle; a row of projecting points around the middle, one-half of these (those on one side) having the tips notched. There is a triangular spout in front, the opening to it being through numerous small round holes forming a strainer. Capacity about three pints. (Fig. 698.)

FIG. 698.

276, (47435). Small pitcher-shaped cooking pot with handle and crenulate margin.

277–278. 277, (47436); 278, (47437). Small plain bowls used in cooking.

279, (47438). A small boat-shaped bowl resembling a pickle dish.

280, (47439). A small, polished black olla.

281, (47440). A small flat flaring bowl of red ware, with simple, narrow, inner marginal black band and an inner sub-marginal line of triangular points with dots between them.

282, (47441). Small image of a quadruped, very rude; impossible to determine the animal intended; white ware with undulate black lines.

283, (47442). Image of a small bird with wings spread; white ware with black lines.

284, (47443). Small bowl of white ware, ornamented with red triangles and squares bordered by black lines.

285, (47444). Specimen of the paint used by the Indians to ornament themselves in their dances.

ARTICLES OF BONE AND HORN.

271, (46656). Corn-husker; handle of antelope-horn and point of iron.

272, (48047). Implement of horn, perforated for straightening arrow-shafts.

COLLECTIONS FROM OLD POJUAQUE.

ARTICLES OF STONE.

286–288. 286, (46661); 287, (46662); 288, (46714). Fragments of metates.

289, (46663). Large, very regularly shaped and much worn metate.

290–296. 290, (46664); 291, (46665); 292, (46666); 293, (46667); 294 (46668); 295, (46669); 296, (46670). Rubbing stones for metates, mostly broken.

297–319. 297, (46671); 298, (46672); 299, (46673); 300, (46674); 301, (46675); 302, (46676); 303, (46677); 304, (46678); 305, (46679); 306, (46683); 307, (46684); 308, (46695); 309, (46690); 310, (46680); 311, (46701); 312, (46702); 313, (46705); 314, (46709); 315, (46710); 316, (46711); 317, (46712); 318, (46713); 319, (46715). Smoothing stones.

320–335. 320, (46681); 321, (46682); 322, (46685); 323, (46686); 324, (46687); 325, (46688); 326, (46689); 327, (46690); 328, (46691); 329, (46692); 330, (46693); 331, (46694); 332, (46699); 333, (46704); 334, (46706); 335; (46707). Hammers or pounding stones, mostly rude and simple, showing but little preparation.

336–338. 336, (46697); 337, (46698); 338, (46700). Rude unpolished celts.

339, (46703). A sharpening stone. Slate.

340, (46708). Grooved stones for polishing arrow-shafts.

ARTICLES OF CLAY.

These consist of only a few fragments of ancient ornamented pottery.

341–342. 341, (46716); 342, (46717). Fragments of pottery from the ruins of the old pueblo.

COLLECTIONS FROM SANTA CLARA.

ARTICLES OF STONE.

343–349. 343, (46762); 344, (46763); 345, (46764); 346, (47535); 347, (47552); 348, (47563); 349, (47564). Metates or grinding stones.

350, (46765). Blocks of stone from the walls of a ruined pueblo, (Liparito or Mesa.)

351–352. 351, (46767); 352, (46780). Rude hatchets or digging stones, notched at the sides and one end, more or less chipped.

353, (46781). Stone hammer, regular in form, grooved, and more than usually slender and pointed.

354–355. 354, (46782); 355, (46787). Pounding stones, chipped and notched at the sides.

356–357. 356, (46792); 357, (46793). Rounded pounding stones with finger pits.

358–359. 358, (46794); 359, (46799). Spherical stones used for casse-têtes, or in common parlance, slung-shot.

360–378. 360, (46800); 361, (46801); 362, (46802); 363, (46815); 364, (46828); 365, (46830); 366, (46832); 367, (46834); 368, (46841); 369, (46873); 370, (46881); 371, (46896); 372, (46965); 373, (47565); 374, (47679); 375, (47689); 376, (47693); 377, (47701); 378, (47707). Rude hammer-stones, some with notches at the sides, others without; none grooved.

379–381. 379, (46803); 380, (46812); 381, (46814). Rubbing stones for metate; mostly broken.

382, (46813). A rude, broken axe.

383–384. 383, (46824); 384, (46825). Smoothing stones used in making and polishing pottery.

385, (46826). Grooved stone for polishing arrow-shafts.

386, (46827). Fragments of pestles.

387–392. 387, (46831); 388, (46833); 389, (46842); 390, (46843); 391, (46963); 392, (46982). Smoothing stones.

393–396. 393, (46844); 394, (46864); 395, (47694); 396, (47700). Rubbing or smoothing stones.

397–398. 397, (46865); 398, (46868). Stone balls used as slung-shot.

399–400. 399, (46869); 400, (46871). Small, round hammer stones.

401, (47714). A rudely carved stone, probably intended to represent some animal.

402–404. 402, (46872); 403, (46882); 404, (46895). Grooved hammers.

405, (46983). Large pounding stone.

406–407. 406, (46985); 407, (46986). Bottles containing chips and flakes of obsidian and agate, from ancient pueblo on mesa.

408, (47987). Collection of 10 stones used in smoothing pottery.

409, (47536). Collection of 67 stones used in smoothing pottery.

410, (47537). Twenty-one stone chips and flakes.

411, (47538). Eight hammer stones and chips.

412–413. 412, (47539); 413, (47549). Grinding or rubbing stones for metate.

414, (47551). Stone mortar.

415–416. 415, (47553); 416, (47559). Rubbing stones for metate.

417–418. 417, (47560); 418, (47562). Pounding stones.

419, (47680). Large metate.

420–421. 420, (47681); 421, (47688). Rubbing stones for metate.

422, (46990). Grooved hammer.

423, (47709). Round pounding stone.

424, (47710). Chips and flakes of agate and jasper (one box).

425, (47711). Smoothing stones for pottery.

426, (47713). Chips and flakes of obsidian (one box).

427, (47715). Flakes and arrow heads of obsidian.

ARTICLES OF CLAY.

These consist of vessels of pottery, a few clay images, and two or three clay pipes. The pottery (with the exception of one or two pieces obtained from other pûeblos) is all black ware, some of which is quite well polished. Some of the ollas are quite large, the form shown in fig. 699 (46993), predominating; others with rather high neck which is marked with sharp, oblique ridges, as shown in fig. 700 (47023).

FIG. 699.

POLISHED BLACK WARE.

428, (46993). Olla shown in fig. 699. The somewhat peculiar form of the body, the sharp curve at the shoulder and straight line in the lower half, is the point to which attention is more particularly called, as this appears to be the principal type form of these vessels, with this pueblo.

429, (46994). A jar-shaped olla.

430–433. 430, (46995); 431, (47023); Fig. 700. 432, (47024); 433, (47147). These are well shown in fig. 700. The oblique lines on the neck indicate sharp external ridges. The lip is also usually undulate or crenate. The size is from medium to large, varying in capacity from one to three or four gallons.

434,(46996). A large pitcher, lower part of the body much inflated, neck rather narrow and encircled by a sharp undulate ridge, handle and spout of the usual form; capacity about two gallons. Coarse brown micaceous ware blackened by fire.

435–437. 435, (46997); 436, (46999); 437, (47008). Small flat olla-shaped bowls.

438, 439. 438, (47002); 439, (47014). Small tinajas with angular shoulders.

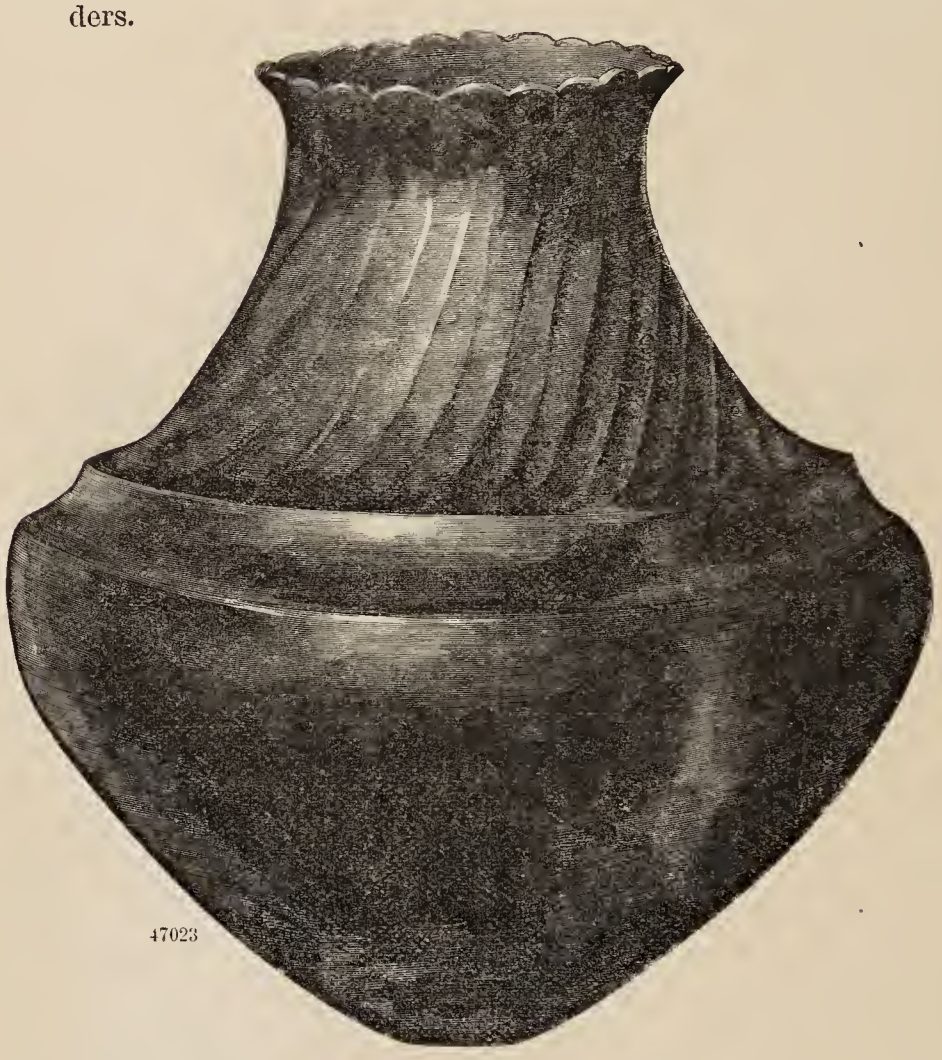

FIG. 700.

440, (47019). A rather small flaring bowl with flat bottom, ornamented with oval depressions on the inner surface; the margin is distinctly and somewhat regularly heptagonal.

441–448. 441, (47029); 442, (47123); 443, (47137); 444, (47141); 445, (47142); 446, (47143); 447, (47143*a*); 448, (47150). Large tinajas most of which are similar in form to that shown in figure 699 (46993); Nos. (47133) and (46137) being the only exception; they are more jar-shaped.

449, (47030). A broken tinaja.

450, (47085). A flaring, flat-bottomed bowl or dish similar to number (47019) except that the inner ornamental depressions are spirally arranged.

451, (47109.) A jar or tinaja similar in form to (46993) fig. 699, except that the neck is longer and the lip flaring and undulate.

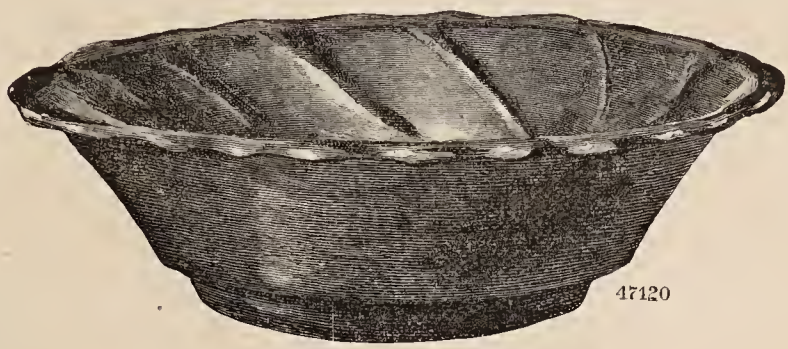

FIG. 701.

452–454. 452, (47112); 453, (47127); 454, (47494). Small pitcher, probably a toy, with handle and a long lip projecting backwards as well as in front.

455–457. 455, (47517); 456, (47115); 457, (47132). Flat-bottomed flaring bowls or dishes similar in form to 450, (47019), but without the inner indentation.

FIG. 702.

458, (47120). A flat-bottomed flaring bowl ornamented internally with spiral ridges and undulated margin shown in fig. 701.

459, (47123). An image of a person in a worshiping attitude, propably intended to represent a Catholic priest chanting. See fig. 702.

460–461. 460, (47134); 461, (47504). Flat-bottomed fan-shaped dishes.

462, (47088). Tea-pot with ordinary handle and spout, copied after the ordinary tea-pot of civilized life.

463, (47116). Basin-like dish, with numerous slightly elevated lines internally.

464, (47136). A duck, small and rude.

465, (47481). An urn-shaped vase with long neck, and without handles. Quite small, scarcely above toy size.

466, (47482). A pottery meal basket used in religious ceremonies and dances; shown in fig. 703. Although differing materially from the Zuñi sacred meal baskets, yet, as is shown in the figure, the pyramidal elevations on the margin are retained.

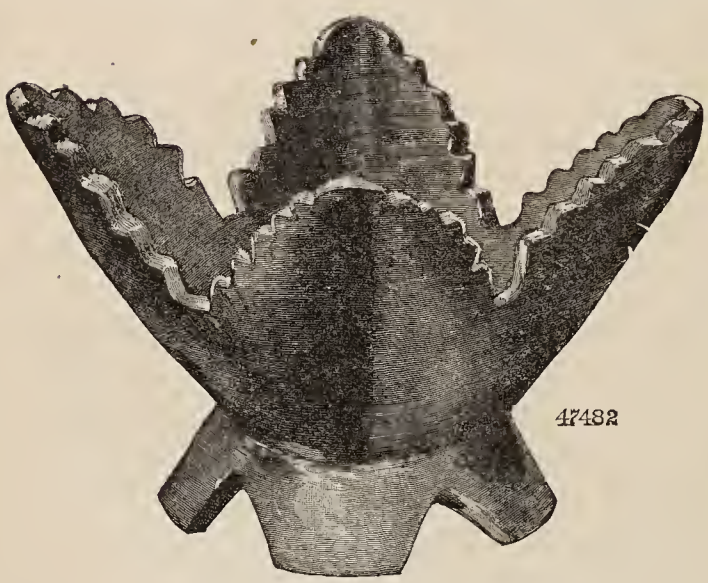

FIG. 703.

FIG. 704.

467–468. 467, (47483); 468, (47487). Tinajas, usually with the lip margin undulate.

469, (47492). Pipe, ornamented on the side with an indented line terminating in an arrow-point, probably denoting lightning; fig. 704.

470, (47493). Pipe, small, cylindrical, slightly hexagonal.

471, (47496). A singular canteen or water vessel shown in fig. 705.

472–477. 472, (47497); 473, (47500); 474, (47506); 475, (47507); 476, (47519); 477, (47516). Pottery moccasins, small toy size.

478, (47498). A squat-shaped olla used as a bowl.

479–480. 479, (47501); 480, (47138). A water vessel precisely of the form and ornamentation shown in fig. 700, but with a handle on each side.

481, (47503). Pitcher without spout.

482, (47502). Earth used for whitening in the manufacture of pottery.

483, (47510). Plain bowl.
484, (47512). Plain bowl.
485, (47527). Well formed bowl with foot or pedestal.

FIG. 705.

486–489. 486, (47001); 487, (47716); 488, (47028); 489, (47717). Flaring bowls with undulate margins.
490, (47718). Bowl similar in form to the preceding one, but much larger.

BLACK OR BROWN WARE.

(Blackened by use on the fire; not polished.)

This ware, when first made and before use, varies in shade from dark earth color to reddish-brown, but the soot, smoke, and fire, when in use, soon darken it; hence it is usually described as black ware. The articles are used for cooking purposes, such as pots—which are usually pot-shaped—some without handles and some with a handle on one side, bowls, &c. The pots vary in capacity from a pint to a little over a gallon.

491–517. 491, (46998); 492, (47000); 493, (47003); 494, (47004); 495, (47010); 496, (47011); 497, (47015); 498, (47021); 499, (47026); 500, (47089); 501, (47100); 502, (47104); 503, (47108); 504, (47119); 505, (47126); 506, (47128); 507, (47488); 508, (47489); 509, (47499); 510, (47505); 511, (47508); 512, (47511); 513, (47521); 514, (47523); 515, (47528); 516, (47529); 517, (47531). Cooking vessels shaped much like the ordinary pot, without handles and without legs.

518–533. 518, (47007); 519, (47012); 520, (47017); 521, (47018); 522, (47020); 523, 47022); 524, (47025); 525, (47092); 526, (47096); 527, (47101); 528, (47111); 529, (47117); 530, (47121); 531, (47124); 532, (47515); 533, (47522). Cooking vessels with handle on one side resembling pitchers.

534–540. 534, (47005); 535, (47009); 536, (47016); 537, (47107); 538, (47129); 539, (47148); 540, (47006). Toy bowls.

541, (47013). A double-mouthed canteen.

542, (47027). A bowl with handle on one side used for cooking purposes.

543–544. 543, (47086); 544, (47090). Globular paint cups, small.

545–546. 545, (47087); 546, (47091). Pipes of the ordinary form, *Tierra amarilla.*

547–549. 547, (47093); 548, (47097); 549, (47098). Images similar to that shown in fig. 702.

550, (47094). Double paint-cup.

551, (47095). Imitation in pottery of a Derby, or some round-crowned, straight-rimmed hat.

552–555. 552, (47099); 553, (47102); 554, (47118); 555, (47122). Small, somewhat boat-shaped dishes; that is, dishes slightly oval with the margin flared at the ends: used as soap dishes.

556, (47103). Small image of a person bearing something on each arm.

557, (47105). A gourd-shaped pipe.

558–559. 558, (47106); 559, (47490). Bowls with legs; margin undulate.

560, (47110). Pottery basket with handle, with smooth margin and without ornamentation.

561, (47113). Globular cooking-pot.

562, (47114). Skillet with handle and feet.

563, (47130). Toy cooking vessels.

564–565. 564, (47131); 565, (47139). Sitting images wearing something like a crown on the head.

566. Sitting image with representations of feathers on the head.

567–568. 567, (47145); 568, (47146). Images.

569–570. 569, (47151); 570, (47300). Fragments of pottery from the mesa.

571–572. 571, (47479); 572, (47532). Doubled-bellied bottles used as water vessels.

573, (47491). Small cup with handle.

574, (47495). Image with horns.

575, (47507). Bowl with straight side and flat bottom.

576–577. 576, (47509); 577, (47533). Toy bowls.

578, (47514). Plain bowl with foot or pedestal.

579, (47513). Small pitcher with handle and spout; ordinary form in civilized life.

580, (47520). Tinaja.

581–583. 581, (47525); 582, (47526); 583, (47530). Potter's clay of the kind used in making the preceding vessels.

WHITENED WARE WITH COLORED DECORATIONS.

There are but few specimens of this ware, which are chiefly important from the fact that the material is of that firm, close, and superior quality that characterizes the ancient pottery of that region. The decorations and general appearance also ally it to the ancient ware.

584, (47476). A turnip-shaped canteen; the only opening being a small hole in the top of the handle, which arises from the top in the form of a semicircular loop. Decorations consist of three bands around the upper half, the first alternate white and black squares, the second a plain red band, and the third or lower like the first. Capacity about three quarts. (Fig. 706.)

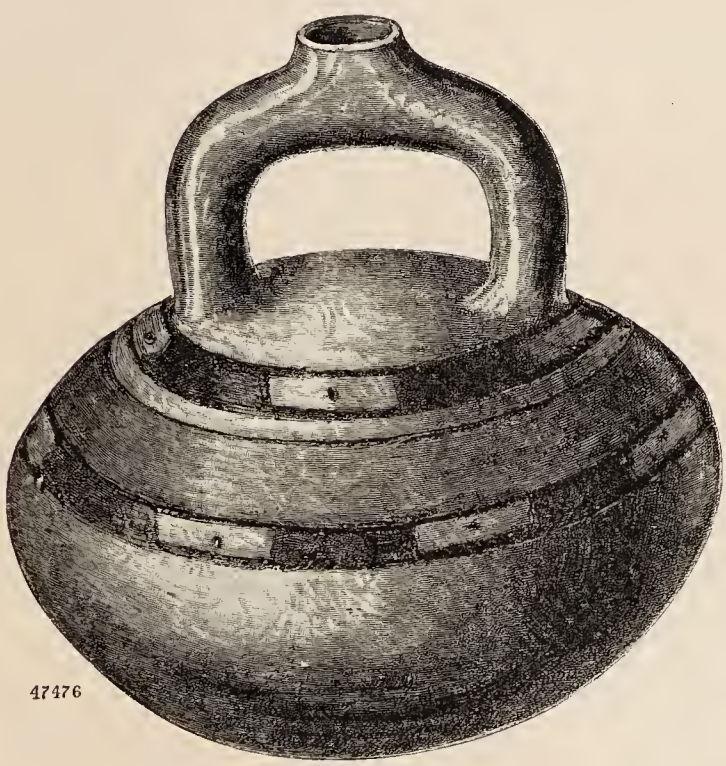

FIG. 706.

585, (47477). A bowl decorated internally with a submarginal band consisting of a vine and leaf; externally with a band of small pear-shaped figures; all in black.

586, (47478). Canteen of the usual form.

587, (47480). Turnip-shaped canteens; small, circular mouth at the center on top; on each side a knob.

VEGETAL SUBSTANCES.

587½, (46829). Spinning top copied from the ordinary top of civilized life.

COLLECTIONS FROM TESUQUE.

ARTICLES OF STONE.

588, (47061). Large regular metate, not much worn.
589, (47063). Metate with legs, regularly oblong, not much worn.
590, (47062). Stone axe and chisel combined.

ARTICLES OF CLAY.

591, (47064). Medium-sized tinaja of the usual form, quite regular and symmetrical, white ware with decorations; zigzag band around the neck; body divided into compartments with a large three-leaved figure in each.
592, (47065). Tinaja similar in form and size to the preceding; black polished ware.

COLLECTIONS FROM TURQUOISE MINE.

This collection, which is a small one, consists, with the exception of some bows, arrows and quivers, of stone hammers only, which were used for mining purposes.
593–594. 593, (47066); 594, (47082). Mining stone-hammers; are large and roughly hewn, usually with an imperfect groove around the middle.
595, (47083). Bows, arrows and beaded quiver.
596, (47084). Bows, arrows and plain quiver.
597, (48048). Bird snares.

COLLECTIONS FROM SANTO DOMINGO.

The collection from this pueblo consists chiefly of pottery belonging to the white decorated variety with ornamentation in black. But few articles of stone were obtained.

ARTICLES OF STONE.

598–599. 598, (47182); 599, (47185). Stone hatchets with broad annular groove near the blunt end.

ARTICLES OF CLAY.

600, (47154). Medium-sized tinaja, much ornamented with vines and birds; body with a broad belt of Greek frets with leaf ornaments above and below.

601, (47155). Similar in every respect to the preceding except that the neck has on it only figures of the cactus leaf.

602, (47157). Tinaja, medium size; zigzag band around the neck, body ornamented with triangles and curved twigs with pinnate leaves.

603, (47156). Large tinaja with scalloped band around the neck; a broad belt of straight lines and crescents on the body.

604, (47158). Large tinaja shown in Fig. 707.

FIG. 707.

605, (47159). Water vessel somewhat in the form of a teapot, with short, straight, cylindrical spout, open on the top, and a transverse loop handle. Ornamented with bands of small triangles.

606, (47223). Similar to preceding, except that the handle is not transverse and the figures are chiefly large stars.

607, (47160). A cup-shaped ladle with handle like ordinary teapot; birds and triangles internally, zigzag lines externally.

608, (47161). Bowl; a double-scalloped, ornamental, broad marginal band and a cross ornament internally. No external ornamentation.

609, (47162). Bowl; crenate marginal band and square central figure internally; external surface plain.

610–617 610, (47163); 611, (47164); 612, (47165); 613, (47166); 614, (47167); 615, (47168); 616, (47169); 617, (47170). Small saucer-shaped bowls ornamented on the inside only, chiefly with crenate marginal bands and leaf figures. In one 615, (47168), there is the figure of a deer and of a long-billed bird.

618, (47171). Pitcher with handle and lip usual form, undulate margin, ornamentation as on the neck of (47158), Fig. 707.

619, (47222). Similar in every respect to 618, (47171), except that the handle is twisted.

620, (47172). Basket-shaped water vessel with handle, three-leaved figures.

621, (47173). Small jar with handle on the side, leaf figures.

622–623. 622, (47174); 623, (47175). Small barrel-shaped jars with diamond figures.

624–626. 624, (47176); 625, (47178); 626, (47179). Double-bellied water bottles, the first with birds and triangles, the second with triangles and diamonds, and the third with flower and leaf ornaments.

627, (47177). Pottery moccasins with leaf and flower ornamentation.

628–629. 628, (47180); 629, (47181). Small bowl-shaped cups with handle; ornamentation chiefly triangles.

COLLECTIONS FROM JÉMEZ.

ARTICLES OF STONE.

630–635. 630, (47209); 631, (47211); 632, (47212); 633, (47279); 634, (47280); 635; (47281). Stone hatchets with imperfect grooves.

636, (42282). Square block of stone with grooves lengthwise and crosswise on one face, used to polish arrow shafts.

637–638. 637, (47051); 638, (47053). Broken rubbers for metates.

639, (48034). Rude stone pounders.

640, (48038). Pestle.

641, (48059). A celt of jasper.

642–643. 642, (48060); 643, (48061). Smoothing stones.

ARTICLES OF CLAY.

These are mostly white ware with ornamentation in black and red; there are a few black specimens.

644–646. 644, (47186); 645, (47187); 646, (47188). Specimens of clay used in making pottery.

647–648. 647, (47216); 648, (47220). Bricks from an old Spanish wall.

649–655. 649, (47189); 650, (47190); 651, (47191); 652, (47193); 653, (47194); 654, (47195); 655, (47198). Small jar-shaped tinajas. The ornamentation consists of heavy waved lines on the body and interrupted straight lines, triangles and narrow simple or scalloped bands on the neck.

656, (47192). A medium-sized tinaja, swollen at the shoulder and of the form shown in Fig. 372. The upper part is ornamented with a broad belt of animal figures, deer and birds, separated from each other by a triangle between each two, with the elongate point directed upwards. Middle surrounded by a belt of oblique broken lines.

657, (47196). Olla of the usual form; ornamentation, a vine, leaves and birds.

658, (47197). Medium-sized, jar-shaped olla, with undulate margin and ornamentation as shown in Fig. 708.

FIG. 708.

659, (47199). Olla with zigzag band around the neck and four dentate bands around the body.

660–665. 660, (47200); 661, 47201); 662, (47202); 663, (47203); 664, (47204); 665, (47215). Canteens of the usual form with two loop handles; upper half ornamented. Chief figures, triangles, stars, and birds.

666, (47205). Tinaja with handle on the side, ornamentation delicate and decidedly neat; zigzag and dotted lines, long pinnate leaf, flowers, &c.

667, (48062). Fragments of pottery from ruins (7 pieces.)

668, (47206). Water vessel resembling in form a tinaja, but with small orifice; ornamented with slender vines and leaves.

669, (47207). Biscuit-shaped bowl; triangular figures on external surface similar to those so common on Zuñi bowls.
670, (47208). Small regularly-shaped bowl; triangular figures.
671, (47213). Tinaja with handle; resembling in form and ornamentation, the pitchers found at Cañon de Chelley.
672, (47214). Olla with crenate margin; external decorations elks and birds.
673, (47278). Small tinaja with a kind of scroll figure around the body.
674–675. 674, (47276); 675, (47277). Small unburned and unadorned tinajas.

MISCELLANEOUS ARTICLES.

676, (48050). Wooden image decorated with feathers (presented by Mrs. T. Stevenson).
677, (47221). Specimen of the matting used in building.

COLLECTIONS FROM SILLA.

ARTICLES OF STONE.

678, (47224). Small square mortar of lava.
679–680. 679, (47242); 680, (47255). Stone hatchets rather well formed with blunt poll, distinct annular groove, and tapering blade; chiefly of basalt, three of metamorphic rock.
681–682. 681, (47256); 682, (47258). Smoothing stones.
683–684. 683, (47259); 684, (47260). Stone hammers with groove.
685–686. 685, (47261); 686, (47263). Pounding stones.
687, (47262). Small oval mortar (lava.)

ARTICLES OF CLAY.

(White ware with red and black decorations.)

688, (47225). Small toy tinaja, a narrow scalloped band at the margin and near the bottom, crescents between.
689, (47227). Tinaja with small orifice, duck figure in red.
690, Water vessel in form of a duck; orifice on the back, wings formed into loop handles. Red and black decorations.
691, (47228). Water vessel in form of a duck; orifice over the neck, loop handle on the back.
692–693. 692, (47237); 693, (47239). Water vessels in form of a duck, without handles.

J. Sinclair & Son, lith., Phila.

FIG. 710. THE BLANKET WEAVER.

694–696. 694, (47229); 695, (47230); 696, (47232). Animal images; first probably a Rocky Mountain sheep; the other two probably dogs. Very rude ornamentation without design.

697, (47236). Water vessel of the form and ornamentation shown in Fig. 709.

FIG. 709.

698, (47238). Medium-sized tinaja with leaf ornaments.

699, (47294). Tinaja with figures like those common on the Zuñi ollas.

700, (47818). Water vessel in the form of a horse, white ware ornamented.

701, (47820). Dog's head, plain.

MISCELLANEOUS.

702, (47264). Specimens of mineral paint. (Ochre or clay-stone.)

703–705. 703, (47265); 704, (47267); 705, (47268). Turquoise drills.

706, (47266). Block of wood to be used in connection with the turquoise drill. Has a simple pit in the center in which the apex of the drill turns.

707, (47269). Wooden war-club of hard oak with serpentine line and arrow point (as on pipe, Fig. 704), cut on one side.

708, (47270). Bow, arrows, and quiver.

709, (47819). Leather bag adorned with feathers, with pebbles inside, used as a rattle in dances.

710, (47234). Tortoise shell with pendent rattles, used as a dance ornament.

711, (47235). A gourd with pebbles inside, used as a rattle.

COLLECTIONS FROM SAN JUAN.

ARTICLES OF STONE.

712, (47760). Flat rubbing or smoothing stone of slate.

713–714. 713, (47762); 714, (47763). Stone hatchets notched at the sides.

715, (47764). Small hammer notched at the sides.

716–717. 716, (47765); 717, (47766). Stone candlesticks, the former with circular base, body hemispherical, with hole in the top. The other (from the altar of the Catholic Church) with square base, the stand short, circular, with moldings.?

718, (47767). Square, flat mortar.

719–724. 719, (47768); 720, (47769); 721, (47770); 722, (47799); 723, (47783); 724, (47776.) Pounding stones.

725–733. 725, (47771); 726, (47774); 727, (47777); 728, (47778); 729, (47782); 730, (47785); 731, (47787); 732, (47790); 733, (47792). Stones with grooves or notches.

734–742. 734, (47772); 735, (47775); 736, (47779); 737, (47781); 738, (47784); 739, (47786); 740, (47789); 741, (47793); 742, (47796). Stone hammers, some grooved, others not.

743–747. 743, (47773); 744, (47788); 745, (47797); 746, (47798); 747, (47808). Smoothing or polishing stones.

748, (47800). A collection of fifty smoothing stones used in polishing pottery.

749–750. 749, (47803); 750, (47804). Small paint mortars.

751, (47805). Scraper and polisher.

752, (47806). Rude animal image, (quadruped).

753, (47807). Hammer.

754, (47809). Hornstone triangular knife.

755, (47810). Collection of nine stone implements.

ARTICLES OF CLAY.

The collection of pottery made at this pueblo presents quite a variety of articles, such as the ordinary clay vessels, bowls, tinajas, water vessels, &c., of black, polished black, brown, mostly without ornamentation, and white ornamented ware, images, pipes, moccasins, &c.

POLISHED BLACK WARE.

756, (47720). A bowl with indented lines and areas internally.

757–758. 757, (47732); 758, (47742). Globular water vessels with loop handles.

759–761. 759, (47733); 760, (47745); 761, (47750). Small tinajas.

762–764. 762, (47735); 763, (47748); 764, (47749). Flat dish-shaped bowls.

765, (47737). A canteen made upon the same plan as that shown in fig. 706, (47476); that is, with opening only at the top of the loop-handle. The body is eroek-shaped with top flat.
766, (47752). Small image.
767–768. 767, (47753); 768, (47759). Straight cylindrieal pipes.
769–770. 769, (47754); 770, (47755). Moecasins.
771, (47757). Small dish.
772, (47758). Pipe preeisely the same in ornamentation as that shown in fig. 704.)

BROWN AND BLACK WARE.

The blaek are only cooking vessels, not polished, but colored ehiefly by use in cooking; the rest are brown.
773, (47726). A very regularly formed teapot with handle and spout, similar to, and evidently modeled after, those used in civilized life.
774, (47728). Sugar bowl with lid, ordinary form.
775–777. 775, (47772); 776, (47739); 777, (47741). Bowls with feet.
778, (47731). Water vessel in the form of a ring, orifice on the outer surface.
779–781. 779, (47734); 780, (47736); 781, (47744). Cooking pots without handles.
782, (47738). Cooking pot with handle, regular pitcher form.
783, (47740). Canteen without handles.
784–785. 784,(47746); 785, (47747.) Small (toy) bowls.
786–787. 786, (47751); 787, (47756). Small (toy) tinajas.

WHITE WARE WITH DECORATIONS.

But few speeimens; ornamentation simple and in black.
788, (47721). Bowl; internally an undulate marginal band, externally a middle band of diamonds and ovals.

FIG. 711.

789, (47730). Bowl; broad inner marginal band of outline bloeks alternating with snake-like figures, external marginal band of outline leaves.

790, (47722). Canteen of the usual form with knobs at the sides.
791, (47723). Small tinaja shown in fig. 711.
792, (47725). Small tinaja with cross on the neck and a double scalloped middle band.
793, (47724). Water vessel in the form of a duck, loop-handle on the back; plain.
794, (47719). Small tinaja.
795, (47727). Canteen of usual form, knob handles, with circle and square.

MISCELLANEOUS ARTICLES.

796, (47811). Head mats of corn-husks, ring-shaped and painted.
797, (47812). Arrow-points, chips, flakes, &c.
798, (47813). Young otter skin.
799, (47814). A scarf to be worn over the shoulder while dancing; with long beaded streamers and tassels.
800, (47815). Medicine bag.
801, (47801). Pottery spindle whirl, simple small disk with hole in the middle.

COLLECTION FROM SANTA ANA.

ARTICLES OF STONE.

802–804. 802, (47284); 803, (47285); 804, (47286). Stone hatchets with groove.

ARTICLES OF CLAY.

These consist of white ornamented ware.
805, (47287). Animal image, probably a fawn, handle on the back.
806–809. 806, (47290); 807, (47291); 808, (47292); 809, (47293). Small tinajas with decorations in black. The figures are the same as those found on Zuñi pottery—scrolls, triangles, scalloped lines and birds, but no antelopes or deer.

COLLECTION FROM SANDIA, N. MEX.

810–811. 810, (47240); 811, (47241). Biscuit-shaped unburnt bowls.

COLLECTION FROM COCHITÍ.

ARTICLES OF STONE.

812–815. 812, (47901); 813, (47905); 814, (47474); 815, (47475). Hat-shaped lava stones used in cooking bread; they are heated and placed on top of the cake. This is an old custom almost entirely abandoned, and now practiced only by a few families of this pueblo.

816–818. 816, (47906); 817, (47907); 818, (47909). Regularly formed pestles.

819–820. 819, (47908); 820, (47910). Pounding stones with groove.

821–822. 821. (47911; 822, (47919). Grooved hatchets or axes.

823–824. 823, (47920); 824, 47923). Smoothing stones.

825, (47924). A collection of 20 smoothing stones.

826, (47925). Seven oval segments or disks of gourd, regularly cut and edged for scraping and smoothing pottery.

827–828. 827, (47470); 828, (47471). Hatchets or pounders (for it is doubtful to which class they belong), with handle yet attached. The second was probably used as a hatchet, the first more likely as a pounder.

829, (47472). Well-shaped hatchets.

830, (47473). Lava mortar.

ARTICLES OF CLAY.

These, with only one or two exceptions, consist of white decorated ware; the bottoms are polished red as usual, but the decorations are in black.

831–832. 831, (47273); 832, (47274). Canteens with loop handles on the side, the first with a star or rosette ornament in the top and scalloped line around the middle, second with triangular figures.

833, (47275). Plain unburnt tinaja.

834, (47288). Image, duck's body with cow's head.

835, (47289). Duck image. This and also the preceding with loop handle on the back and trident figures on the sides.

836, (47295). Pitcher-shaped cup, with handle, ornamentation, oblique dashes.

837, (47296). Deep, olla-shaped bowl; anvil-shaped figures on the outside.

838, (47297). Small canteen, loop-handles at the sides, central star ornament

839–840. 839, (47445); 840, (47446). Bowls adorned with sprigs and flowers internally and stars externally; quite neat.

841–844. 841, (47447); 842, (47448); 843, (47449); 844, (47460). Bowls; most of them with a narrow dotted marginal band externally and internally. 841, (47447) has a central star inside and a band of triangles on the outside. 842, (47448) with no other ornamentation. 843, (47449) and 844, (47460) with animal figures on the inner face.

845, (47461). A biscuit-shaped bowl, with vertical ridges on the external surface.

845½, (47462). Water vessels, the body shaped as the ordinary tinaja, surmounted with outstretched arms and human head, the orifice through the mouth. Scroll ornaments.

846, (47463). Canteen of the usual form with loop handles and leaf ornaments.

847–848. 847, (47464); 848, (47466). Duck images used as water vessels.

849, (47465). Water vessel; animal image somewhat resembling a fish, but was probably intended for a duck; loop handle on the back and at each side.

850, (47468). Gourd-shaped water vessel with animal head at the apex, as in Fig. 709.

851, (47467). Toy cooking vessel of unadorned brown ware.

852, (47816). Large tinaja of white painted ware, with lid much like Fig. 651, (39533), plate 81.

MISCELLANEOUS ARTICLES.

853, (47301). Specimen of dried melon; is twisted like a rope.

854, (47392). Fox skin.

855, (47303). Brick from a wall.

856, (47304). Copper cannon ball scarcely one inch in diameter.

857, (47305). Copper kettle with handle.

858, (48049). A musical instrument.

COLLECTIONS FROM SAN ILDEFONSO.

The collections from this pueblo were the largest made during the year 1880, consisting of pottery of different kinds, black and brown painted ware, stone implements and wooden utensils.

ARTICLES OF STONE.

858½–861. 858½, (47976); 859, (47977); 860, (48031); 861, (48044). Lava mortars.

862, (48032). Mortar with three cavities.

863, (47978). Pestle and rubber combined.

864–867. 864, (47979); 865, (47985); 866, (47017); 867, (48025). Rubbers for metates, of regular form.

868–877. 868, (47986); 869, (47999); 870, (48000); 871, (48010); 872, (48013); 873, (48015); 874, (48016); 875, (48026); 876, (48033); 877, (48039). Pounding stones.

878, (47987). Paint muller.

879–880. 879, (47988); 880, (48045). Pestles.

881–883. 881, (47989; 882, (48028); 883, (48029). Grooved hammers.

884–887. 884, (47990); 885, (47996); 886, (47998); 887, (48030). Hatchets with grooves or notches.

888–892. 888, (47997); 889, (48001); 890, (48009); 891, (48040); 892, (48043). Smoothing stones.

893, (48014). Round stone used as slung shot.

894, (48027). Chisel.

ARTICLES OF CLAY.

These consist of painted white ware with decorations in black; polished black ware and black and brown ware.

The white pottery resembles very closely, in the forms, color, and ornamentation, that from Taos and Cochití, the white in all these being of a creamy color.

FIG. 712.

895–897. 895, (47319); 896, (47321); 897, (47325). Medium-sized hemispherical bowls, ornamented, on the inside only, with star figures or rosettes and triangles.

898–899. 898, (47320); 899, (47324). Similar bowls with similar ornamentation both internally and externally.

900, (47323). Bowl of similar form and size; only decoration a broad external marginal band with oval spaces in it.

901, (47322). Small bowl with decorations on the inner surface only.

902–903. 902, (47326); 903, (47327). Medium-sized olla-shaped bowls not adorned internally; marginal line of dots externally. Latter with zigzag belt; former with serpents, crosses, and figure of bottle on a stand; Fig. 712.

904, (47329). Large tinaja with cover. Vines and leaves on the neck, and around the body a broad belt of figures resembling fringed medicine bags.

905–906. 905, (47334); 906, (47336). Canteens of the usual form, with loop handles at the sides; the first ornamented with the common central star and triangles, the second has no central figure. Posterior half with interlaced figure.

907, (47335). Globular canteens; side handles; cactus leaves and simple broad bands.

908, (47337). Flower-pot precisely of the usual form, with hole in the bottom, grooved outline, dentate bands.

909–916. 909, (47351); 910, (47354); 911, (47359); 912, (47360); 913, (47361); 914, (47362); 915, (47363); 916, (47364.) Small bowls with decorations on the inner face.

917, (47373). Small pitcher; handle broken off.

918, (47387.) A bowl of peculiar and significant ornamentation.

919–920. 919, (47389); 920, (47390). Bowls ornamented on the inner face only.

921–922. 921, (47391); 922, (47392). Straight-sided or crock-shaped, deep bowls, with foot. First with a zigzag submarginal band on the inner side and a zigzag line and dots around the body on the outside. The latter with a dotted inner marginal band, a vine and leaves around the outside.

923–925. 923, (47399); 924, (47400); 925, (47401). Pear-shaped or conical water-vessels, with animal heads at the apex; decorations simple.

926–927. 926, (47414); 927, (47415). Olla-shaped bowls, of medium size, ornamented internally and externally.

928, (47416). Basin-shaped bowl, with foot, ornamented internally and externally.

929, (47426). Bird image.

RED WARE WITH DECORATIONS IN BLACK.

930, (47328). Medium-sized tinaja, bead figures or necklace around the neck, zigzag band on the shoulders, sprig, double looped and serrate triangular figures on the body.

931, (47331). Small tinaja; undulate marginal band, tear-drops on the neck, large band divided into triangles pointing alternately up and down, fitting into the spaces, each with two oval, red spaces.

932, (47333). Small tinaja, with alternating triangles base to base on both neck and body, those on the body with circular spaces.
933, (47338). Flower-pot of the ordinary form, with undulate margin, zigzag submarginal band, belt of flower ornaments on the body.
934, (47340). Bowl with a belt of anvil-shaped figures on the outside.
935, (47352). Bowl decorated on the inside, outside plain.
936, (47355). Bowl with vine externally and internally.

RED AND BROWN WARE WITHOUT DECORATIONS.

937–939. 937, (47339); 938, (47358); 939, (47379). Plain bowls.
940, (47353). Olla-shaped bowl with undulate margin.
941–942. 941, (47370); 942, (47375). Small tinajas.
943, (47372). Bottle with square groove around the middle.
944, (47376). Oval dish.
945–946. 945, (47377); 946, (47378). Flat circular dishes.
947, (47397). A rather large, regular-shaped fruit jar with margin expanded horizontally.
948–953. 948, (47404); 949, (47405); 950, (47406); 951, (47409); 952, (47410); 953, (47411). Bird images.
954–956. 954, (47407); 955, (57408); 956, (47413). Images of the human form, first with hat on, second apparently praying, third with arms extended and sash crossing in front from each shoulder.
957, (47424). Images of the human form.
958, (47403). Basket-shaped, toy water-vessel with loop handle.

BLACK POLISHED WARE.

959–961. 959, (47341); 960, (47350); 961, (47417). Bowls,
962–963. 962, (47356); 963, (47357). Dishes with undulate edge.
964–965. 964, (47365); 965, (47366). Toy bowls.
966–967. 966, (47380); 967, (47386). Small basket-shaped vessels with handles across the top.
968, (47388). Oblong dish.
969, (47393). Basin with foot and undulate margin.
970, (47394). Toy jar.
971–972. 971, (47395)); 972, (47396). Toy pottery kegs, the latter with a handle.
973, (47402). Duck-shaped water-vessel.
974, (47412). Two-headed bird image.
975, (47418). Small paint cup.
976–977. 976, (47419); 977, (47420). Bowls with arched handle.
978–979. 978, (47427; 979, (47430). Toy dishes.

BLACK WARE NOT POLISHED.

980–982. 980, (47367); 981, (47369); 982, (47371). Cooking pots.

MISCELLANEOUS ARTICLES.

983, (47318). Ox cart, "*carreta*."

984, (47425). Arrow straightener of bone; (a piece of bone with round holes in it.)

COLLECTIONS FROM TAOS.

The collections made from this pueblo were quite extensive and varied.

ARTICLES OF STONE.

985–997. 985, (47846); 986, (47848); 987, (47852); 988, (47854); 989, (47856); 990, (47858); 991, (47863); 992, (47873); 993, (47875); 994, (47879); 995, (47880); 996, (47883); 997, (47887). Stone hatchets grooved.

998–1004. 998, (47847); 999, (47853); 1000, (47861); 1001, (47864); 1002, (47876); 1003, (47878); 1004, (47882). Rounding stones.

1005–1014 1005, (47855); 1006, (47860); 1007, (47866); 1008, (47869); 1009, (47880); 1010, (47871); 1011, (47872); 1012, (47877); 1013, (47881); 1014, (47884). Stone hammers very rude, sometimes with a groove, but generally with simply a notch at each side.

1015, (47859.) Rude stone knife.

1016–1021. 1016, (47862); 1017, (47865); 1018, (47867); 1019, (47868); 1020, (47885); 1021, (47886). Rubbing and polishing stones.

1022, (47874). Grooved stone for polishing arrow-shafts (Fig. 713).

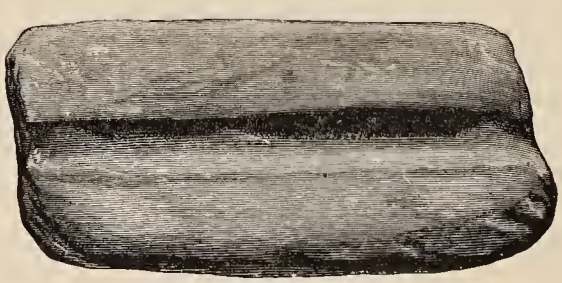

FIG. 713.

ARTICLES OF CLAY.

These are chiefly vessels of brown and black ware, some two or three pieces only being ornamented ware.

1023–1027. 1023, (47821); 1024, (47822); 1025, (47828); 1026, (47829); 1027, (47833). Brown ware, pitcher shaped vessels with handle, used as cooking vessels.

1028–1032. 1028, (47823); 1029, (47824); 1030, (47825); 1031, (47826); 1032, (47827). Cooking pots, brown ware, smoke stained.

1033, (47830). Olla of unburned ware.

1034, (47831). Bowl with handle, black ware.

1035, (47832). Teapot of the ordinary form, polished black ware.

1036, (47834). Small globular olla with undulate margin, of polished black ware.

1037, (47835). Water bottle with four loop handles, brown ware.

1038–1041. 1038, (47836); 1039, (47839); 1040, (47839); 1041, (47845). Small spherical ollas of brown ware.

1042, (47840). Small bowl of black polished ware.

1043, (47841). A globular water vessel with a ridge around the middle; polished blaek ware.

1044, (47842). Dish of polished black ware.

WHITE AND RED WARE WITH DECORATIONS.

1045, (47844). A singular-shaped bowl shown in Fig. 714. The outside is red but the inside is painted white; ornamentation in black.

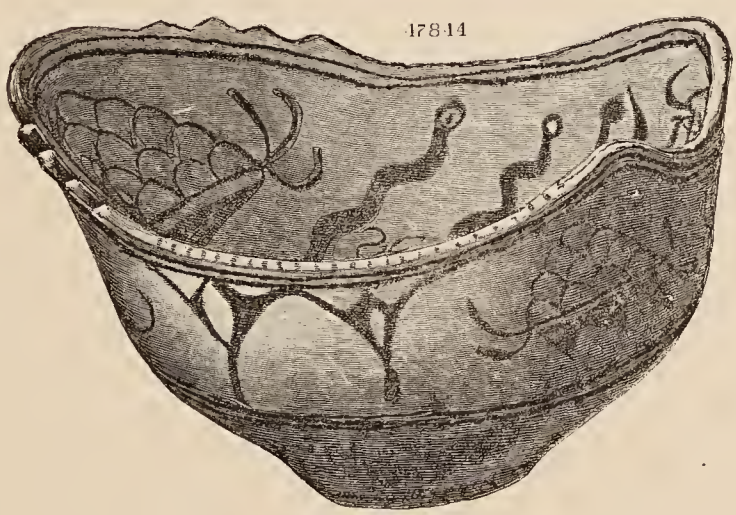

FIG. 714.

1046, (47843)., A bottle-shaped eanteen with animal head, flower and serrated ornamentation. Red ware.

1047, (47838). Large tinaja, white ware with black ornamentation, sprigs and triangles.

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